North American Electric Reliability Corporation
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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

North American Electric Reliability Corporation) **Docket No. _________**
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PETITION OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARD EOP-012-2 AND REQUEST FOR EXPEDITED ACTION

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Pursuant to Section 215(d)(1) of the Federal Power Act ("FPA")[1] and Section 39.5[2] of the Federal Energy Regulatory Commission's ("FERC" or "Commission") regulations, and the Commission's February 16, 2023 order in Docket No. RD23-1-000,[3] the North American Electric Reliability Corporation ("NERC")[4] hereby submits for Commission approval proposed Reliability Standard EOP-012-2 (Extreme Cold Weather Preparedness and Operations).[5]

Since 2011, multiple cold weather events have demonstrated the severe risks that extreme cold weather can pose to reliability. Proposed Reliability Standard EOP-012-2 is a generator cold weather preparedness standard that, along with other currently effective, approved, and proposed NERC Reliability Standards, would provide a comprehensive framework of requirements

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[1] 16 U.S.C. § 824o.

[2] 18 C.F.R. § 39.5 (2023).

[3] *N. Am. Elec. Reliability Corp.*, 182 ¶ 61,094 (2023) (approving Reliability Standards EOP-011-3 and EOP-012-1 and directing further revisions) [hereinafter February 2023 Order], *reh'g. denied,* 183 FERC ¶ 62,034, *order addressing arguments raised on reh'g,* 183 FERC ¶ 61,222.

[4] The Commission certified NERC as the electric reliability organization ("ERO") in accordance with Section 215 of the FPA on July 20, 2006. *N. Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062 (2006), *order on reh'g & compliance*, 117 FERC ¶ 61,126 (2006), *aff'd sub nom. Alcoa, Inc. v. FERC*, 564 F.3d 1342 (D.C. Cir. 2009).

[5] Unless otherwise indicated, all capitalized terms used in this petition shall have the meaning set forth in the *Glossary of Terms used in NERC Reliability Standards* ("NERC Glossary"), https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf.

addressing cold weather planning and operations to help assure the reliability of the Bulk-Power System during future winter seasons.

Proposed Reliability Standard EOP-012-2 improves upon the approved, but not yet effective, generator cold weather preparation Reliability Standard EOP-012-1. Consistent with the Commission's directives in the February 2023 Order, proposed Reliability Standard EOP-012-2 would clarify the applicability of standard's requirements for generator cold weather preparedness, further define the circumstances under which a Generator Owner may declare that constraints preclude them from implementing one or more corrective actions to address freezing issues, and shorten the implementation timeline so cold weather reliability risks would be addressed more quickly. Proposed Reliability Standard EOP-012-2 also reflects additional improvements that would address the recommendations of the FERC, NERC, and Regional Entity Staff Joint Inquiry into the causes of the February 2021 cold weather event affecting Texas and the south-central United States.[6]

NERC requests that the Commission approve proposed Reliability Standard EOP-012-2, along with the proposed revised definitions of the terms Generator Cold Weather Component and Generator Cold Weather Reliability Event and the proposed definitions of new terms Fixed Fuel Supply Component and Generator Cold Weather Constraint, as shown in **Exhibit A**, as just, reasonable, not unduly discriminatory or preferential, and in the public interest. NERC also requests that the Commission approve: (i) the associated Violation Risk Factors ("VRFs") and Violation Severity Levels ("VSLs") (**Exhibit E**); (ii) the retirement of Reliability Standard EOP-012-1; and (iii) the proposed implementation plan (**Exhibit B**).

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[6] FERC, NERC, Regional Entity Staff Report: *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021), https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and [hereinafter February 2021 Event Joint Inquiry Report]. This cold weather reliability event will be referred to throughout this petition as the "February 2021 Event."

In light of the pending October 1, 2024 effective date of Reliability Standard EOP-012-1, and the clarifying nature of many of the revisions proposed in Reliability Standard EOP-012-2, NERC respectfully requests that the Commission consider approving proposed Reliability Standard EOP-012-2, the associated elements, and the implementation plan on an expedited timeframe.

As required by Section 39.5(a)[7] of the Commission's regulations, this petition presents the technical basis and purpose of the proposed Reliability Standard, a demonstration that the proposed Reliability Standard meets the criteria identified by the Commission in Order No. 672[8] (**Exhibit D**), and a summary of the standard development history (**Exhibit F**). The NERC Board of Trustees adopted the proposed Reliability Standard on February 15, 2024.

This petition is organized as follows: Section I provides an overview of this filing. Section II provides the individuals to whom notices and communications related to the filing should be provided. Section III provides relevant background regarding the regulatory structure governing the Reliability Standards approval process. Section IV provides relevant background regarding the need for enhanced Reliability Standards to address cold-weather preparedness and operations, NERC's prior standard development work in this area, and the Commission's February 2023 Order directing revisions to the first version of the EOP-012 standard, Reliability Standard EOP-012-1. Section V provides an overview and justification for proposed Reliability Standard EOP-012-2 and the related defined terms. Section VI provides a summary of the proposed implementation plan. Section VII provides a summary of next steps NERC plans to take regarding implementation

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[7] 18 C.F.R. § 39.5(a).

[8] The Commission specified in Order No. 672 certain general factors it would consider when assessing whether a particular Reliability Standard is just and reasonable. *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, 114 FERC ¶ 61,104, at PP 262, 321-37, *order on reh'g*, Order No. 672-A, 114 FERC ¶ 61,328 (2006).

of the EOP-012 Reliability Standard, including actions to address the Commission's directives for further reporting and actions to address the recommendations of the joint inquiry team following the December 2022 Winter Storm Elliott event.[9] Section IX summarizes why NERC requests expedited action in this proceeding.

I. SUMMARY

Multiple events since 2011 have demonstrated the substantial impacts that extreme cold weather conditions can have on the reliability of the Bulk-Power System. Extreme cold weather was a major factor in Bulk-Power System reliability events in 2011,[10] 2014,[11] 2018,[12] 2021,[13] and 2022.[14] Of these events, the February 2021 cold weather reliability event proved to be exceptionally severe. The conditions experienced during this event resulted in emergencies in three Reliability Coordinator footprints in the south-central United States and required the use of firm load shed to maintain system reliability. In the Electric Reliability Council of Texas ("ERCOT") Interconnection, system conditions deteriorated significantly due to the exceptionally high number of generator outages combined with exceptionally high customer demand. System operators in ERCOT and other neighboring areas ordered what ultimately became the largest controlled firm

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[9] FERC, NERC, and Regional Entity Staff Report, *Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott* (Oct. 2023) [hereinafter Winter Storm Elliot Report], https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022.

[10] *See* FERC and NERC Staff, *Report on Outages and Curtailments During the Southwest Cold Weather Event of February 1-5, 2011: Causes and Recommendations* (Aug. 2011), https://www.ferc.gov/sites/default/files/2020-04/08-16-11-report.pdf.

[11] *See* NERC, *Polar Vortex Review* (Sep. 2014), https://www.nerc.com/pa/rrm/January%202014%20Polar%20Vortex%20Review/Polar_Vortex_Review_29_Sept_2014_Final.pdf (reviewing generator outages during the January 2014 polar vortex weather event).

[12] *See* FERC and NERC Staff, *The South Central United States Cold Weather Bulk Electric System Event of January 17, 2018* (Jul. 2019), https://www.nerc.com/pa/rrm/ea/Documents/South_Central_Cold_Weather_Event_FERC-NERC-Report_20190718.pdf.

[13] February 2021 Event Joint Inquiry Report, *supra* note 6.

[14] Winter Storm Elliott Report, *supra* note 9.

load shed event in United States history to avoid a complete blackout. The resulting power outages, combined with the historically cold temperatures gripping the region, resulted in significant human and economic impacts. Many people lost their lives.

The February 2021 Event, like those cold-weather reliability events before it, had two main causes, both triggered by cold weather. First, generating units, unprepared for cold weather, failed in large numbers. Second, declines in natural gas production led to supply issues, which were exacerbated by the grid's increasing reliance on natural gas fired generation to provide the necessary capacity and essential reliability services vital for continued reliable operation of the Bulk-Power System. NERC has highlighted in its reliability assessments the rapid transformation of the grid, including the increasing reliance on intermittent energy resources and "just in time" natural gas deliveries, and how that transformation has produced a generation resource mix that is more sensitive to extreme temperature and weather conditions than the fleet of prior years. This trend has underscored the need for Reliability Standards to address the potential implications of this sensitivity on the reliable operation of the Bulk-Power System. NERC has made developing these Reliability Standards a high priority.

In 2021, NERC took an important first step to assure the reliability of the Bulk-Power System in future winter seasons through the development of the first cold weather Reliability Standards, Reliability Standards EOP-011-2 (Emergency Preparedness and Operations), IRO-010-4 (Reliability Coordinator Data Specification and Collection), and TOP-003-5 (Operational Reliability Data). These Reliability Standards were approved by the Commission in August 2021 and become effective April 1, 2023. These Reliability Standards are advancing the reliability of the Bulk-Power System by both improving generator readiness for cold-weather conditions and enhancing awareness of factors that could limit generating unit availability by the entities responsible for the reliable operation of the grid.

Over the course of 2022 and 2023, NERC developed two additional sets of cold weather Reliability Standards in two phases to address the standards-related recommendations of the February 2021 Event Joint Inquiry Report:

- The first set, completed in 2022, consisted of Reliability Standards EOP-012-1 and EOP-011-3. In February 2023, the Commission approved Reliability Standards EOP-012-1 and EOP-011-3, with directives to submit within 12 months further modifications to Reliability Standard EOP-012-1 and the associated implementation plan, along with a plan for reporting on the implementation of the EOP-012 standard.[15] Reliability Standard EOP-012-1 will become effective in the United States on October 1, 2024.[16]

- The second set, completed in 2023, consisted of proposed Reliability Standards EOP-011-4 and TOP-002-5. In February 2024, the Commission approved Reliability Standards EOP-011-4 and TOP-002-5 but deferred its decision on NERC's proposed implementation plan for EOP-011-4 until NERC submits the revised applicability section for Reliability Standard EOP-012-1.[17]

As discussed more fully in this Petition, proposed Reliability Standard EOP-012-2 would improve upon Reliability Standard EOP-012-1 by providing needed clarity regarding the standard's requirements for generator cold-weather preparedness and making other improvements consistent with FERC's directives in the February 2023 Order. The proposed standard would also advance reliability through further improvements to address the remaining key recommendations of the February 2021 Event Joint Inquiry Report.

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[15] *See* February 2023 Order at PP 4-11 for a summary of the Commission's directives for standards modifications and implementation plan modifications, and discussion in *infra* Section IV.C.

[16] In the February 2023 Order, the Commission deferred approving the effective date of Reliability Standard EOP-011-3 until NERC submits the directed revisions to clarify the applicability of Reliability Standard EOP-012-1. The Commission explained it was taking this action due to the transition of requirements for cold weather preparedness plans and training from EOP-011-3 to EOP-012-1. *See id.* P 59.

[17] *N. Am. Elec. Reliability Corp.*, 186 FERC ¶ 61,115 at PP 20-21 (2024).

Specifically, proposed Reliability Standard EOP-012-2 would improve upon Reliability Standard EOP-012-1 by providing the following clarifications and modifications to the proposed Reliability Standard and the associated implementation plan:

- Clarifying the applicability of the standard, so that all Generator Owners would continue to be required to develop cold weather preparedness plans and train on those plans consistent with currently effective EOP-011-2;
- Clarifying the limited exemption for the EOP-012 winterization requirements, so that it is clear the only units that would be exempted from applying freeze protection measures are those Bulk Electric System units that do not operate in freezing conditions (except in a limited capacity, during an Emergency);
- Clarifying that the standard would apply to new intermittent energy resources, and they must provide capability to operate for their maximum operational duration if that is less than 12 hours (e.g., solar farm in area with less than 12 hours of sunlight in winter);
- Clarifying the limited circumstances under which a Generator Owner could declare constraints precluding them implementing a specific corrective action contained in a Corrective Action Plan to address freeze protection issues;
- Clarifying the steps Generator Owners would take when they declare a constraint, including reporting any reliability-related impacts to reliability entities as part of their generating unit cold weather data;
- Adding deadlines for completing corrective actions in a Corrective Action Plan; and
- Abbreviating the overall timeline for implementation of the EOP-012 standard, so that reliability risks would be addressed more quickly.

As discussed more fully herein, these improvements address the Commission's directives from the February 2023 Order. Additionally, the proposed standard would improve upon Reliability Standard EOP-012-1 by requiring the following actions, consistent with the remaining standards-related key recommendations from the February 2021 Joint Inquiry Report:

- Requiring Generator Owners to consider the impacts of freezing precipitation and wind speed in identifying generator cold weather data;
- Requiring Generator Owners to review their generator cold weather data periodically; and

- Requiring Generator Owners to include any identified start up issues in their generator cold weather data provided to reliability entities.

Through these clarified and improved requirements for generator cold-weather preparedness, proposed Reliability Standard EOP-012-2 would advance the reliability of the Bulk-Power System in future cold weather seasons. Further, this reliability benefit would be realized much sooner than originally anticipated under NERC's proposed implementation plan. For these reasons, NERC respectfully requests that the Commission approve proposed Reliability Standard EOP-012-2 as just, reasonable, not unduly discriminatory or preferential, and in the public interest.

While proposed Reliability Standard EOP-012-2 represents a significant improvement upon approved Reliability Standard EOP-012-1, work remains to be done to ensure that it will achieve its stated reliability goals of improving generator cold-weather preparedness. Considering the significant risks that extreme cold-weather can pose to reliability, the ERO Enterprise is preparing a broad and comprehensive strategy for coordinating its cold weather activities, including assessing the implementation of the EOP-012 standard. NERC has submitted a work plan in Docket No. RD23-1 explaining how it will gather data and submit an analysis that will allow the Commission to understand the efficacy of the EOP-012 Reliability Standard, consistent with the Commission's directives to that effect in the February 2023 Order.[18] NERC and the Regional Entities are preparing a strategy for performing robust compliance monitoring and

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[18] *See* February 2023 Order at P 94, in which the Commission directed:

> [W]e direct that NERC…work with Commission staff to develop and submit a plan within 12 months of the issuance of this order explaining how it will gather data and submit an analysis that will allow the Commission to understand the efficacy of, and monitor the ongoing risk posed by: (1) proposed technical, commercial, or operational constraint provisions in EOP-012-1, Requirements R1, R6, and R7; and (2) actual performance of freeze protection measures during future extreme cold weather events.

The Commission also directed NERC to include specific data in its plan, and to include an annual informational filing to the Commission beginning 12 months after the mandatory and enforceable date of the standard. *See id.* at P 95.

enforcement of the currently-effective and approved generator cold weather Reliability Standards, consistent with Recommendation 1(b) of the Winter Storm Elliott report.[19] Additionally, Commission, NERC, and Regional Entity staff have launched a joint review of the performance of the Bulk-Power System during the January 2024 winter storms that brought Arctic air across much of North America. The review will look at winter preparation activities and gather information to help guide future winter storm preparations and operations.[20] To the extent that these efforts indicate that further refinements or clarifications are needed to any of the cold-weather Reliability Standards, NERC will promptly initiate the standards development process to make the needed changes.

II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the

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[19] Winter Storm Elliott Report, *supra* note 9, at 132:

> Recommendation 1(b): Findings from the Report support the need for robust monitoring by NERC and the Regional Entities of compliance with the currently-effective and approved generator cold weather Reliability Standards, to determine if reliability gaps exist. NERC should identify the generating units that are at the highest risk during extreme cold weather and work with the Regional Entities (and Balancing Authorities, if applicable) to perform cold weather verifications of those generating units until all of the extreme cold weather Standards proposed by the 2021 Report are approved and effective. (Verify highest risk units by Q4, 2023; implement by Q3, 2024).

[20] NERC Announcement: *FERC, NERC to Review Bulk Power System Performance During Recent Winter Storms*, https://www.nerc.com/news/Pages/FERC,-NERC-to-Review-Bulk-Power-System-Performance-During-Recent-Winter-Storms-.aspx.

following:[21]

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III. REGULATORY FRAMEWORK

By enacting the Energy Policy Act of 2005,[22] Congress entrusted the Commission with the duties of approving and enforcing rules to ensure the reliability of the Bulk-Power System, and with the duties of certifying an ERO that would be charged with developing and enforcing mandatory Reliability Standards, subject to Commission approval. Section 215(b)(1)[23] of the FPA states that all users, owners, and operators of the Bulk-Power System in the United States will be subject to Commission-approved Reliability Standards. Section 215(d)(5)[24] of the FPA authorizes the Commission to order the ERO to submit a new or modified Reliability Standard. Section 39.5(a)[25] of the Commission's regulations requires the ERO to file with the Commission for its approval each new Reliability Standard that the ERO proposes should become mandatory and

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[21] NERC respectfully requests a waiver of Rule 203 of the Commission's regulations, 18 C.F.R. § 385.203, to allow the inclusion of more than two persons on the service list in this proceeding.

[22] 16 U.S.C. § 824o.

[23] *Id.* § 824o(b)(1).

[24] *Id.* § 824o(d)(5).

[25] 18 C.F.R. § 39.5(a).

enforceable in the United States, and each modification to a Reliability Standard that the ERO proposes should be made effective.

The Commission is vested with the regulatory responsibility to approve Reliability Standards that protect the reliability of the Bulk-Power System and to ensure that Reliability Standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest. Pursuant to Section 215(d)(2) of the FPA[26] and Section 39.5(c)[27] of the Commission's regulations, the Commission will give due weight to the technical expertise of the ERO with respect to the content of a Reliability Standard.

NERC develops Reliability Standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC Standard Processes Manual.[28] In its order certifying NERC as the Commission's ERO, the Commission found that NERC's rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing Reliability Standards,[29] and thus satisfy the Commission's criteria.[30] The development process is open to any person or entity with a legitimate interest in the reliability of the BPS. NERC considers the comments of all stakeholders. Under NERC's usual processes for standards development, stakeholders must approve, and the NERC Board of Trustees must adopt, a new or revised Reliability Standard before NERC submits the Reliability Standard to the Commission for approval.

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[26] 16 U.S.C. § 824o(d)(2).

[27] 18 C.F.R. § 39.5(c)(1).

[28] The NERC Rules of Procedure, including Appendix 3A, NERC Standard Processes Manual, are available at http://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx.

[29] *N. Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062 at P 250 (2006).

[30] Order No. 672*, supra* note 8, at PP 268, 270.

IV. BACKGROUND: RELIABILITY STANDARDS TO ADDRESS COLD WEATHER PREPAREDNESS AND OPERATIONS

Proposed Reliability Standard EOP-012-2 is the latest addition to NERC's comprehensive framework of Reliability Standards to address cold weather preparedness and operations. Proposed Reliability Standard EOP-012-2 improves upon the initial version of the EOP-012 standard, Reliability Standard EOP-012-1, by providing needed clarity regarding the standard's requirements for generator cold weather preparedness and making other improvements consistent with the Commission's directives in the February 2023 Order and the recommendations of the February 2021 Event Joint Inquiry Report.

The following discussion provides an overview of the development of NERC's cold weather Reliability Standards and a summary of the February 2023 Order that preceded the development of proposed Reliability Standard EOP-012-2.

A. Reliability Standards EOP-011-2, IRO-010-4, and TOP-003-5: an Important First Step in Advancing System Reliability During Cold Weather Conditions.

NERC developed currently effective Reliability Standards EOP-011-2, IRO-010-4, and TOP-003-5, approved by the Commission in August 2021,[31] to address the recommendations of the 2019 FERC and NERC Staff report examining the causes of the January 2018 cold weather event affecting Texas and the south central United States.[32] In that report, FERC and NERC staff concluded that the primary cause of the January 2018 event was a failure to properly prepare or

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[31] The Commission approved Reliability Standards EOP-011-2, IRO-010-4, and TOP-003-5, in August 2021. *See N. Am. Elec. Reliability Corporation*, 176 FERC ¶ 61,119 (2021). The standards became mandatory and enforceable on entities in the United States on April 1, 2023. The Commission approved subsequent versions of the IRO-010 and TOP-003 Reliability Standards, Reliability Standards IRO-010-5 and TOP-003-6.1, in November 2023, to become effective in the United States on July 1, 2025. *N. Am. Elec. Reliability Corp.*, Docket No. RD23-6-000 (2023) (delegated letter order).

[32] *See* FERC and NERC Staff, *The South Central United States Cold Weather Bulk Electric System Event of January 17, 2018* (Jul. 2019), https://www.nerc.com/pa/rrm/ea/Documents/South_Central_Cold_Weather_Event_FERC-NERC-Report_20190718.pdf [hereinafter January 2018 Event Report].

winterize generation facilities for cold temperatures, with natural gas supply issues a major contributing factor.[33] FERC and NERC staff recommended a three-pronged approach, including new or revised Reliability Standards, enhanced outreach to Generator Owners and Generator Operators, and market rules where appropriate, to address reliability needs in cold weather conditions.

Consistent with the standards-related recommendations of the January 2018 Event Report, Reliability Standard EOP-011-2 contains two new requirements related to generator cold weather preparedness: the first, a requirement for Generator Owners to implement and maintain cold weather preparedness plans addressing freeze protection measures, annual inspection and maintenance for such measures, and identification of cold weather operating parameters, including fuel considerations and operating temperatures (Requirement R7); and the second, a requirement to provide training on such plans to generator personnel (Requirement R8). Reliability Standard EOP-011-2 also contains revised requirements to address reliability impacts of cold weather conditions specifically in Transmission Operator and Balancing Authority emergency Operating Plans (Requirements R1 Part 1.2.6 and R2 Part 2.2.9, respectively). Reliability Standards IRO-010-4 and TOP-003-5 add requirements for the inclusion of generator cold weather data and information in Reliability Coordinator, Transmission Operator, and Balancing Authority data specifications, including data and information regarding generator operating limitations in cold weather and the expected operating temperature of the generator.

The EOP-011-2, IRO-010-4, and TOP-003-5 Reliability Standards represented an important first step in improving the reliability of the Bulk-Power System during the winter months. However, as discussed below, an exceptionally severe cold weather reliability event in

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[33] *Id.* at 80, 84.

February 2021 would prompt NERC to develop additional Reliability Standards providing more comprehensive protections for future cold weather seasons.

B. Reliability Standards EOP-011-3, EOP-012-1, EOP-011-4, and TOP-002-5: Building on Prior Work to Provide a More Comprehensive Framework for Cold Weather Preparedness and Operations.

Over the course of 2022 and 2023, NERC completed the development of additional Reliability Standards to build upon the first-round cold weather Reliability Standards EOP-011-2, IRO-010-4, and TOP-003-5 and provide a more comprehensive framework for cold weather preparedness and operations. NERC initiated Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination in November 2021 to address the standards-related recommendations in the February 2021 Event Joint Inquiry Report.[34] Through this project, NERC developed Reliability Standards EOP-011-3, EOP-012-1, EOP-011-4, and TOP-002-5 across two phases of development. This section provides a summary of these development efforts.

1. The February 2021 Event Provided Additional Insights for Reliability Standards Enhancements

As summarized in the February 2021 Event Joint Inquiry Report, an arctic cold front descended on large parts of Texas and the south central United States beginning on February 8, 2021, bringing with it freezing temperatures. Over the course of the coming days, the extreme cold weather would have reliability impacts in three Reliability Coordinator footprints, ERCOT, Midcontinent Independent System Operator ("MISO"), and Southwest Power Pool ("SPP"), with ERCOT being affected most severely. During the event, there was a sharp decline of natural gas supply caused by unplanned outages of natural gas wellheads due to freeze-related issues, loss of power, and facility shut-ins to prevent imminent freezing issues. Supply issues contributed to outages and derates of many gas-powered generating units. The affected area also experienced

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[34] February 2021 Event Joint Inquiry Report *supra* note 6.

periods of freezing participation and snow, which caused additional outages from wind turbine blade icing. As increasingly colder temperatures set in, unplanned generator outages and derates sharply increased, while load also increased. These conditions resulted in emergencies in the ERCOT, MISO, and SPP areas and ultimately necessitated the use of firm load shed to maintain system reliability. At its worst point, the ERCOT system came dangerously close to a complete blackout, and operators in the ERCOT, MISO, and SPP footprints ordered what was ultimately the largest controlled firm load shed event in United States history to maintain the stability of the system. In Texas, more than 4.5 million people lost power. The human and economic toll from the February 2021 Event was immense.[35]

In its summary of the key findings and causes of the February 2021 Event, the joint inquiry team identified that two causes, both triggered by cold weather, lead to the Event, and that these two causes form a recurring pattern in cold weather events over the previous ten years. The first cause was that generating units unprepared for cold weather failed in large numbers. The second cause was related to supply issues caused by the decline in natural gas production, exacerbated by the increasing reliance on natural gas fired generation.[36] The joint inquiry team identified that, despite prior recommendations that entities take steps to prepare for winter, a significant number of generating units failed to have any winterization plans.[37] The joint inquiry team further

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[35] For a complete summary of the February 2021 Event, *see* February 2021 Event Joint Inquiry Report at Section I.A, Synopsis of Event at 10-15.

[36] *Id.* at 11-12.

[37] *Id.* at 17.

determined that 81% of the freeze-related generating unit outages occurred at temperatures above the unit's stated ambient design temperature.[38]

To address these and other findings, the February 2021 Event Joint Inquiry Report contained recommendations for further action in the areas of cold weather preparedness and operations. Recommendation 1 consisted of ten sub-recommendations for Reliability Standards enhancements. Key Recommendations 1a-1g related to enhanced requirements for generator cold weather preparedness, including implementing freeze protection measures, addressing the causes of freezing issues, providing cold weather plan preparedness plan training on an annual basis, and understanding the generation capacity that is available in cold weather.[39] Key Recommendations 1h-1i recommended requirements to limit the participation of critical natural gas production facilities in load shedding schemes to protect electric system reliability in cold weather.[40] Key Recommendation 1j recommended requirements to minimize the overlap of circuits used in manual and automatic load shed circuits to help maintain system frequency when operators have the best chance of doing so.[41]

Consistent with the recommendations of the February 2021 Event Joint Inquiry Report, NERC developed Reliability Standards responsive to these recommendations in two phases, completed in Fall 2022 and Fall 2023, respectively, as discussed below.

2. Phase 1: NERC Develops Reliability Standards EOP-011-3 and EOP-012-1

In November 2022, NERC submitted for Commission approval Reliability Standards EOP-011-3 and EOP-012-1, as well as three defined terms for inclusion in the NERC *Glossary*: Extreme

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[38] *Id.*

[39] February 2021 Event Joint Inquiry Report at 184-190.

[40] *Id.* at 208-209.

[41] *Id.* at 209.

Cold Weather Temperature, Generator Cold Weather Critical Component, and Generator Cold Weather Reliability Event. As discussed further in NERC's petition seeking Commission approval of the standards,[42] Reliability Standards EOP-011-3 and EOP-012-1 represented the conclusion of the first phase of work to address Key Recommendations 1d, 1e, 1f, and 1j of the February 2021 Event Joint Inquiry Report, each with a target Winter 2022-2023 completion date, as well as Key Recommendations 1a and 1b, each with a target Winter 2023-2024 completion date.

Reliability Standard EOP-012-1 contains new and revised requirements that build on the cold weather preparedness plan and training requirements currently found in Reliability Standard EOP-011-2 for enhanced generator cold weather preparedness. Reliability Standard EOP-012-1 includes requirements for freeze protection measures for both new and existing generation to provide capability to operate at the Extreme Cold Weather Temperature[43] for the location (Requirements R1 and R2, respectively); the development of enhanced cold weather preparedness plans and annual training on those plans (Requirements R3 and R5, respectively); the periodic recalculation of the Extreme Cold Weather Temperature, update of cold weather preparedness plan, and review of freeze protection measures needed to provide operational capability at that temperature (Requirement R4); and the development and implementation of Corrective Action Plans to address freezing issues or insufficiencies in freeze protection measures to operate at the Extreme Cold Weather Temperature (Requirements R6 and R7, respectively). Consistent with Key Recommendation 1j of the February 2021 Event Joint Inquiry Report, Reliability Standard EOP-011-3 builds upon the cold weather operations planning improvements reflected in Reliability

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[42] *Petition of NERC for Approval of Proposed Reliability Standards EOP-011-3 and EOP-012-1 and Request for Expedited Action*, Docket No. RD23-1-000 (Oct. 28, 2022) [hereinafter EOP-011-3/EOP-012-1 Petition].

[43] The Extreme Cold Weather Temperature is defined as "The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated."

Standard EOP-011-2 to improve how Transmission Operators account for the overlap of manual load shed and automatic load shed in their emergency Operating Plans (Requirement R1 Part 1.2.5, Requirement R2 Part 2.2.8). Requirements R7 and R8 of Reliability Standard EOP-011-2 are removed in this version due to their relocation to Reliability Standard EOP-012-1. The Commission approved Reliability Standards EOP-011-3 and EOP-012-1 in February 2023 with directives for further modifications, as discussed in Section IV.C, below.

3. Phase 2: NERC Develops Proposed Reliability Standards EOP-011-4 and TOP-002-5

In November 2023, NERC submitted for Commission approval Reliability Standards EOP-011-4 and TOP-002-5. As discussed further in NERC's petition seeking Commission approval of the standards,[44] Reliability Standards EOP-011-4 and TOP-002-5 address Key Recommendations 1g, 1h, and 1i from the February 2021 Event Joint Inquiry Report. Proposed Reliability Standard EOP-011-4 further builds upon the improvements reflected in Reliability Standards EOP-011-2 and EOP-011-3 to require Balancing Authorities, Transmission Operators, and load shedding entities to account for critical natural gas infrastructure loads in the demand response and emergency load shedding programs they oversee, so that deploying these programs in cold weather conditions will not exacerbate natural gas fuel supply issues which can constrain generating unit capacity and thereby threaten the reliability of the Bulk-Power System. Reliability Standard TOP-002-5 will require Balancing Authorities to implement comprehensive Operating Processes for

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[44] *Petition of NERC for Approval of Proposed Reliability Standards EOP-011-4 and TOP-002-5 and Request for Expedited Action*, Docket No. RD24-1-000 (Oct. 30, 2023).

extreme cold weather periods in their areas. The Commission approved Reliability Standards EOP-011-4 and TOP-002-5 on February 15, 2024.[45]

C. The Commission's February 2023 Order Directs Additional Changes to Reliability Standard EOP-012-1

In February 2023, the Commission approved the Phase 1 Reliability Standards EOP-011-3 and EOP-012-2. In its order, the Commission approved Reliability Standard EOP-011-3 as proposed and found that Reliability Standard EOP-012-1 "represents an improvement to the Reliability Standards and enhances the reliable operation of the Bulk-Power System."[46] The Commission, however, expressed concern with certain aspects of Reliability Standard EOP-012-1 and the proposed implementation plan, and directed NERC to revise the standard and implementation plan as follows:

Applicability, generally: The Commission expressed concern that the applicability provisions of Reliability Standard EOP-012-1, consisting of inclusions and exemptions, are unclear and ambiguous, and the exemptions and limitations could "obfuscate[] the extent of applicability" of the standard.[47] The Commission therefore directed NERC to revise the applicability of the standard to ensure that it captures all Bulk Electric System ("BES") generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions, consistent with NERC's stated intent for the standard's applicability.[48]

Applicability of Cold Weather Preparedness Plan and Training Requirements: Finding that "even as to the limited set of excluded generating units, the obligation to have a cold weather

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[45] *N. Am. Elec. Reliability Corp.*, 186 FERC ¶ 61,115 (2024).

[46] February 2023 Order at P 36.

[47] *Id.* at PP 54-58 (discussion).

[48] *Id.* at P 58.

emergency preparedness plan(s) and training should remain,"[49] and expressing concern that Reliability Standard EOP-012-1 could "eliminate valuable information on cold weather preparedness" from excluded units to include generating unit cold weather data provided to the Reliability Coordinator, Transmission Operator, and Balancing Authority for planning and operations,[50] the Commission directed NERC to revise Reliability Standard EOP-012-1 to ensure this information remains available from all generators. Relatedly, the Commission deferred its decision on whether to approve the proposed effective date of Reliability Standard EOP-011-3 until NERC submits the revised applicability section of EOP-012 to ensure all entities currently covered by Reliability Standard EOP-011-2's requirements for cold weather preparedness plans and training would remain covered under the revised EOP-012 standard.[51]

Generator Constraints to Implementing Winterization Measures: The Commission expressed concerns that the proposed technical, commercial, or operational constraint provisions in Requirements R1 and R7 that would allow an entity to explain in a declaration why it could not comply with winterization requirements lacked clear and auditable criteria for compliance.[52] The Commission therefore directed NERC to develop modifications to Requirements R1 and R7 "to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures and to ensure that the constraint declarations may not be used to opt-out of compliance with the Standard or obligations set forth in a corrective action plan."[53] Specifically, the Commission directed NERC to "include auditable criteria on permissible

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[49] *Id.* at P 4 n.9.

[50] *Id.* at P 60.

[51] *Id.* at P 59.

[52] *Id.* at P 64-65.

[53] *Id.* at P 66.

constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7."[54]

Generator Continuous Operations Capability Requirements: Finding the "continuous operation" language to be ambiguous, the Commission directed NERC to modify EOP-012-1 Requirement R1 "to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard."[55] The Commission also directed NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2, which it found to be too short, to better align with the stated purpose of the Reliability Standard EOP-012-1.[56]

Corrective Action Plan deadlines: The Commission found it appropriate to include a maximum time for implementing corrective actions in a Corrective Action Plan. The Commission therefore directed NERC to revise Reliability Standard EOP-012-1 to include a deadline or maximum period for the completion of corrective action plan measures where the development of Corrective Action Plans is required.[57]

Implementation Plan: The Commission agreed with commenter concerns regarding the length of the proposed implementation period of Reliability Standard EOP-012-1.[58] The Commission therefore directed NERC to require a shorter implementation period and staggered

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[54] *Id.*

[55] *Id.* at P 89.

[56] *Id.* at P 90.

[57] *Id.* at P 79.

[58] NERC's proposed implementation plan for Reliability Standard EOP-012-1 and EOP-011-3 provided a five-year implementation period for freeze protection capability requirements, with no specific deadline for the implementation of Corrective Action Plan measures.

implementation for unit(s) across a generator owner's fleet, stating that such an approach "will reduce reliability risks more quickly."[59]

In addition to the above-directed standards modifications, the Commission directed NERC to work with Commission staff to develop a plan on how it will assess and collect data periodically to monitor the implementation of new requirements for Generator Owners; particularly, the impact of the technical, commercial, or operational constraint provisions of Reliability Standard EOP-012-1. The Commission directed NERC to submit this plan, to include certain categories of enumerated data and other information that will include annual informational filings to the Commission, within 12 months of issuance of the order.[60]

As discussed more fully in the following section, NERC submits proposed Reliability Standard EOP-012-2 to address the Commission's directives for standards modifications in the February 2023 Order. NERC has filed separately the directed EOP-012 reporting plan in Docket No. RD23-1.

V. JUSTIFICATION FOR APPROVAL

In this petition, NERC submits for Commission approval proposed Reliability Standard EOP-012-2 – Extreme Cold Weather Preparedness and Operations as well as two new and two revised defined terms used in the proposed standard for inclusion in the NERC *Glossary*. The purpose of proposed Reliability Standard EOP-012-2 is "to address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units." The proposed Reliability Standard would be applicable to Generator Owners and Generator Operators

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[59] February 2023 Order at P 88.

[60] *Id.* at PP 93-96.

that own or operate BES generating units. The proposed Reliability Standard has eight requirements; seven of these are carried forward from Reliability Standard EOP-012-1, including the requirements for cold weather preparedness plans and training in currently effective Reliability Standard EOP-011-2.

Proposed Reliability Standard EOP-012-2 improves upon Reliability Standard EOP-012-1 through an optimized organizational structure and through revisions intended to improve the clarity and effectiveness of the standard. Consistent with the Commission's directives in the February 2023 Order, proposed Reliability Standard EOP-012-2 would clarify the applicability of standard's requirements for generator cold weather preparedness, further define the circumstances under which a Generator Owner may declare that constraints preclude them from implementing one or more corrective actions to address freezing issues, and shorten the implementation timeline so cold weather reliability risks would be addressed more quickly. Proposed Reliability Standard EOP-012-2 also reflects additional improvements that would address the remaining recommendations of the February 2021 Joint Inquiry Report. These clarifications and improvements contribute to a clearer and stronger standard for generator cold weather preparedness that would help advance the reliability of the Bulk-Power System during future cold weather seasons.

The revisions in proposed Reliability Standard EOP-012-2 and the defined terms used in proposed Reliability Standard EOP-012-2 are discussed more fully below. Additional discussion of the technical basis for the original requirements in Reliability Standard EOP-012-1, which are clarified and expanded upon in proposed Reliability Standard EOP-012-2, is available in NERC's petition for approval of Reliability Standards EOP-011-3 and EOP-012-1.[61]

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[61] *See* EOP-011-3/EOP-012-1 Petition, *supra* note 42.

NERC developed proposed Reliability Standard EOP-012-2 through Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination. The proposed Reliability Standard was developed in an open and fair manner and in accordance with the Commission-approved development process for Reliability Standards, a process which included public comment and ballot periods. Following approval by the ballot body, the NERC Board of Trustees adopted proposed Reliability Standard EOP-012-2 on February 15, 2024. The summary of development and complete record of development for proposed Reliability Standard EOP-012-2 is attached to this petition as **Exhibit F**.

As discussed in **Exhibit D**, and for the reasons stated below, proposed Reliability Standard EOP-012-2 meets the Commission's criteria for approval in Order No. 672 and is just, reasonable, not unduly discriminatory, and in the public interest. NERC respectfully requests that the Commission approve proposed Reliability Standard EOP-012-2 and the defined terms, to become effective in accordance with the proposed implementation plan discussed in Section VI.

A. Defined Terms Proposed for Inclusion in the NERC *Glossary*

NERC proposes two new and two revised definitions of terms used in proposed Reliability Standard EOP-012-2 for inclusion in the NERC *Glossary.* These terms are Generator Cold Weather Critical Component, Fixed Fuel Supply Component, Generator Cold Weather Reliability Event, and Generator Cold Weather Constraint. The proposed definitions are discussed below.

1. Generator Cold Weather Critical Component and Fixed Fuel Supply Component

Under proposed Reliability Standard EOP-012-2, as with Reliability Standard EOP-012-1, each Generator Owner would be required to identify its Generator Cold Weather Critical Components in its cold weather preparedness plans. Additionally, each Generator Owner owning a unit that operates in freezing conditions would be required to implement freeze protection measures on these Generator Cold Weather Critical Components that provide the capability to operate at the unit's Extreme Cold Weather Temperature.[62] NERC proposes to revise the approved definition of Generator Cold Weather Critical Component as follows:

> **Generator Cold Weather Critical Component** - Any generating unit component or system, or associated F~~f~~ixed F~~f~~uel S~~s~~upply C~~c~~omponent, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

As NERC explained in its petition for approval of Reliability Standards EOP-011-2 and EOP-012-1, the standard drafting team determined that the best method to address where freeze protection measures should be implemented, consistent with Key Recommendation 1b of the February 2021 Event Joint Inquiry Report, was a defined term to specify a subset of components that may be susceptible to freezing and which are critical to the operation of the generating unit, and for which the Generator Owner would be able to take protective measures.[63] In revising Reliability Standard EOP-012-1, the standard drafting team determined that the definition of Generator Cold Weather Critical Component would benefit from additional clarification and refinement, and such clarification and refinement would improve the overall clarity of the standard.

The standard drafting team determined two sets of changes were needed. First, the standard drafting team revised the definition of Generator Cold Weather Critical Component to exclude equipment or systems that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing. The standard drafting team determined that such

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[62] The Extreme Cold Weather Temperature is defined as, "The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated." The Commission approved this definition, which appears throughout proposed Reliability Standard EOP-012-2, in the February 2023 Order. NERC is not proposing any revisions to this definition at this time.

[63] *See* EOP-011-3/EOP-012-1 Petition at 27.

a limitation was appropriate to focus efforts on protecting components that have a much higher probability of being susceptible to freezing.

Second, the standard drafting team developed a new definition of Fixed Fuel Supply Component to incorporate into the definition of Generator Cold Weather Critical Component, as follows:

> **Fixed Fuel Supply Component** – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

This proposed definition is nearly identical to the explanation offered by the standard drafting team for the phrase "fixed fuel supply component" in connection with the original definition of Generator Cold Weather Critical Component.[64] Including this explanation as a defined term within the term Generator Cold Weather Critical Component would provide for additional clarity and consistency in application of the standard.

The revised, clarified definition of Generator Critical Cold Weather Component remains consistent with the February 2021 Event Joint Inquiry Report Key Recommendation 1a, which defines "cold-weather critical components and systems" as "those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or

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[64] *See* EOP-011-3/EOP-012-1 Petition at 28 (in which NERC explained that the phrase "fixed fuel supply component" within the definition of Generator Cold Weather Critical Component definition was intended "to refer to non-mobile equipment that supports the reliable delivery of fuel to the generating unit that is controlled by the Generator Owner. It would include gaseous, liquid, or solid fuel handling components that are installed as fixed parts of the fuel delivery system that are under the Generator Owner's control. It would not include mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location.".)

fail to start."[65] Trips, derates, or failure to start are addressed in the definition of Generator Cold Weather Reliability Event, discussed in the following section.

2. Generator Cold Weather Reliability Event

Under proposed Reliability Standard EOP-012-2, as with Reliability Standard EOP-012-1, a Generator Owner that experiences a Generator Cold Weather Reliability Event would be required to develop a Corrective Action Plan to address the identified issues that lead to the event. NERC proposes to revise the approved definition of the term Generator Cold Weather Reliability Event as follows:

> **Generator Cold Weather Reliability Event** - One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:
>
> (1) a forced derate of more than 10% of the total capacity of the unit ~~and exceeding~~ but not less than 20 MWs for longer than four hours in duration;
>
> (2) a start-up failure where the unit fails to synchronize within a specified start-up time; or
>
> (3) a Forced Outage.

The proposed revisions to this definition are intended to capture the effects of freezing precipitation specifically and discussed further in the context of Requirement R6 in Section V.G.X, below.

3. Generator Cold Weather Constraint

Proposed Reliability Standard EOP-012-2 provides that a Generator Owner may decline to implement one or more actions in a Corrective Action Plan to address freeze protection issues if certain constraints on implementation are present. In Reliability Standard EOP-012-1, the standard

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[65] February 2021 Event Joint Inquiry Report at 184.

refers to these constraints as "technical, operational, or commercial constraints." To address the concerns raised by the Commission in the February 2023 Order that such language lacked clear and auditable criteria for compliance,[66] Reliability Standard EOP-012-2 further defines these constraints to provide more meaningful, measurable criteria for implementation consistent with the intent of the standard drafting team in developing Reliability Standard EOP-012-1. These criteria are reflected in the proposed definition of Generator Cold Weather Constraint, a new term which NERC proposes to define as follows:

> **Generator Cold Weather Constraint** – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.
>
> Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:
>
> - Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
> - Could not have been expected to accomplish the desired result; or
> - Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

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[66] *See* February 2023 Order at P 64-65.

The proposed definition of Generator Cold Weather Constraint is discussed in further detail in the contexts of Requirements R7 and R8, in Sections V.H.3 and H.4, below.

B. Applicability of Proposed Reliability Standard EOP-012-2

Proposed Reliability Standard EOP-012-2 improves upon approved Reliability Standard EOP-012-1 by clarifying the applicability of the standard's requirements. Proposed Reliability Standard EOP-012-2 will remain applicable to the Generator Owner and Generator Operator, consistent with Reliability Standard EOP-012-1. However, the Applicable Facilities section, Section 4.2, has been revised so that the standard is applicable to all BES generating resources, without reference to expected operations in cold weather. The Exemptions formerly found in EOP-012-1 Section A.4.2.2, referring generally to units that do not operate in freezing temperatures, are also removed. Where the standard drafting team has determined that where limited exclusions are necessary, to avoid placing an undue burden on generating units not expected to operate in cold weather, the standard drafting team has included improved language to that effect in the specific requirements.[67]

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[67] As under Reliability Standard EOP-012-1, the standard drafting team determined to exempt BES generating units not expected to operate in cold weather from the Extreme Cold Weather Temperature operational capability requirements (Requirements R2, R3, R6), and, by extension, the associated Corrective Action Plan requirements to address identified issues related to such capability (Requirements R7, R8). However, to avoid confusion, the standard drafting team determined to do so through carefully drafted limitations in the individual requirements, rather than broadly through the Applicable Facilities section. These revisions are discussed more fully in Section V.G below.

The revised Section A.4.2. Applicable Facilities section thus is improved from approved Reliability Standard EOP-012-1 as follows:

A. Introduction

Section 4. Applicability

4.1. Functional Entities:

4.1.1. Generator Owner

4.2.2. Generator Operator

Section 4.2. Facilities

4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following Bulk Electric System (BES) resources:

~~4.2.1.1 A Bulk Electric System generating unit that commits or is obligated to serve a Balancing Authority load pursuant to a tariff obligation, state requirement as defined by the relevant electric regulatory authority, or other contractual arrangement, rule, or regulation, for a continuous run of four hours or more at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius); or~~

4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

4.2.1.2 A Blackstart Resource, identified in the BES definition, inclusion I3.

~~4.2.2 Exemptions:~~

~~4.2.2.1 Any Bulk Electric System generating unit included under Section 4.2.1 above that has a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) under Requirement R3 Part 3.1 and as part of , identified in the required five year review in Requirement R4 Part 4.1 is exempt from further requirements in this standard BES definition, inclusion I3.~~

~~4.2.2.2. A Bulk Electric System generating unit that is not committed or obligated to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) for any continuous run of more than four hours, but is called upon to operate for more than four hours in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or~~

> ~~below a temperature of 32 degrees Fahrenheit (zero degrees Celsius).~~

The applicability of proposed Reliability Standard EOP-012-2 defines a "generating unit", as the term is used in the standard, as a BES resource. The definition of BES provides further details regarding the generating resources that are included and subject to the standard (Inclusions I2-I4). For clarity, all three BES generation categories are enumerated in proposed EOP-012-2. As noted above, the exemptions to the applicable facilities included in Reliability Standard EOP-012-1 are removed from this section of the standard in proposed EOP-012-2. Streamlining the applicability section in this manner serves to clarify the applicability of the standard, as well as ensure it captures all BES generating resources that are necessary for reliable operation consistent with the Commission's directive in paragraph 58 of the February 2023 Order.[68]

In addition to streamlining the applicability and improving the clarity of the standard, the revisions to the applicability of proposed Reliability Standard EOP-012-2 ensure the continued applicability of requirements for cold weather preparedness plans and training on those plans as those requirements are transitioned from Reliability Standard EOP-011-2 Requirements R7 and R8 to proposed Reliability Standard EOP-012-2 Requirements R4 and R5. This change is consistent with paragraph 59 of the February 2023 Order, in which the Commission deferred

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[68] February 2023 Order at P 58 ("[W]e direct NERC, pursuant to FPA section 215(d)(5), to modify Reliability Standard EOP-012-1 to ensure that it captures all bulk electric system generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions. As the directive is to clarify the language of the applicability section to align with NERC's explanation of the entities that should comply, there should be no need for additional implementation time." (internal citation omitted)).

approving the retirement date of EOP-011-2 due to concerns about the applicability of these requirements going forward in the EOP-012 standard.[69]

Additionally, and as discussed further in Sections V.E-F below, these applicability revisions ensure the continued applicability of requirements for identifying generating unit cold weather data, to include operating limitations and minimum operating temperatures, as the requirements are transitioned from Reliability Standard EOP-011-2 to proposed Reliability Standard EOP-012-2. As the Commission noted in paragraph 60 of the February 2023 Order, "units that do not typically run during the winter may be called upon during emergencies."[70] Therefore, under proposed Reliability Standard EOP-012-2, all BES generating units would be required to identify their cold weather operating parameters, which would then be exchanged with the Reliability Coordinator, Transmission Operator, and Balancing Authority for planning and operations under the data specification standards, Reliability Standards TOP-003-5 and IRO-010-4 (or their approved successor versions).

In summary, the proposed revisions to the applicability of proposed Reliability Standard EOP-012-2 would improve the clarity of the EOP-012 standard and help ensure that requirements for cold weather preparedness plans and training, as well as the identification of cold weather operating parameters, would remain in place from Reliability Standard EOP-011-2 to proposed Reliability Standard EOP-012-2. Revisions to other requirements would further refine the

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[69] February 2023 Order at P 58. *See also id.* at P 5 ("Further, as Reliability Standard EOP-011-2 requirements to implement and maintain cold weather preparedness plan(s) and associated training applies to all bulk electric system generating units, we defer our decision on whether to approve or modify NERC's proposed implementation date for Reliability Standard EOP-011-3 (and proposed retirement of Reliability Standard EOP-011-2) until NERC submits its revised applicability section for EOP-012. Allowing EOP-011-2 requirements to remain mandatory and enforceable until such time as the revised applicability is effective for EOP-012 will ensure all bulk electric system generating units are required to maintain cold weather preparedness plans."). The Commission similarly deferred its determination regarding the implementation plan for Reliability Standard EOP-011-4 pending submission of the directed changes to EOP-012. *See N. Am. Elec. Reliability Corp.*, 186 FERC ¶ 61,115 at P 21. (2024)

[70] February 2023 Order at P 60.

applicability of those requirements to specific BES generating units consistent with the February 2023 Order.

C. Requirement R1: Generator Cold Weather Data and Information

Proposed Reliability Standard EOP-012-2 would improve upon Reliability Standard EOP-012-1 by reorganizing and consolidating requirements related to the calculation of the Extreme Cold Weather Temperature and identification of generator cold weather operating parameters. Proposed Reliability Standard EOP-012-2 begins with a new foundational cold weather data requirement, Requirement R1, that would be applicable to all Generator Owners owning an applicable unit (i.e., a BES generating unit). Under Requirement R1, each Generator Owner would be required, at least once every five years, to calculate the Extreme Cold Weather Temperature for each of its BES generating units and identify the generating unit cold weather data for that BES generating unit.

Proposed Requirement R1 provides as follows:

> **R1**. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s):
>
> **1.1**. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and
>
> **1.1.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.
>
> **1.2.** Identify generating unit(s) cold weather data, to include:
>
> **1.2.1**. Generating unit(s) operating limitations in cold weather to include
>
> **1.2.1.1**. Capability and availability;
>
> **1.2.1.2**. Fuel supply and inventory concerns;
>
> **1.2.1.3**. Start-up issues;
>
> **1.2.1.4**. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

Proposed Reliability Standard EOP-012-2 Requirement R1 Part 1.1 would carry forward the requirements under Reliability Standard EOP-012-1 Requirement R3 Part 3.1 and Requirement R4 for each Generator Owner to calculate the Extreme Cold Weather Temperature for each of its applicable generating units and to re-perform that calculation at least once every five calendar years. Where a periodic re-calculation results in a lower Extreme Cold Weather Temperature for the generating unit, the Generator Owner would update its cold weather preparedness plan within six months and, if necessary, develop a Corrective Action Plan to implement measures at the applicable unit to provide the capability to operate at that new, lower temperature.[71] Proposed Reliability Standard EOP-012-2 Requirement R1 Part 1.2 would carry forward requirements to identify generating unit cold weather data, to include operating limitations in cold weather and minimum operating temperature, from Reliability Standard EOP-012-1 Requirement R3 Part 3.5.

Several revisions are proposed from the corresponding requirements in Reliability Standard EOP-012-1 to advance reliability.

First, as discussed previously, revisions to the Applicability section of proposed Reliability

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[71] Corresponding revisions in Reliability Standard EOP-012-2 Requirement R4 pertaining to cold weather preparedness plans would provide, consistent with Reliability Standard EOP-012-1 Requirement R4 Part 4.1, that the lowest calculated Extreme Cold Weather Temperature for a generating unit location would be used in the cold weather preparedness plan, even if subsequent re-calculations using updated weather data would result in a higher Extreme Cold Weather Temperature.

Standard EOP-012-2 would ensure this requirement is applicable to all Generator Owners for each BES generating unit, consistent with currently effective Reliability Standard EOP-011-2.

Second, proposed Reliability Standard EOP-012-2 would improve upon prior iterations of this requirement by expressly providing that cold weather operating data must be reviewed from time to time for continued validity. This improvement is consistent with Key Recommendation 1b of the February 2021 Event Joint Inquiry Report, which provides: "At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary."[72] The standard drafting team determined that including a minimum five-year timeframe for such review in the requirement, which is consistent with the timeframe for review and recalculation of the Extreme Cold Weather Temperature, would provide for uniformity and ease of administration across North America. To the extent a Generator Owner identifies that changes to its cold weather data under this requirement are needed sooner than five years, such as due to experiencing a Generator Cold Weather Reliability Event, the Generator Owner should update its cold weather data so it is providing the most-up-date and accurate information to the Reliability Coordinator, Transmission Operator, or Balancing Authority under Reliability Standards IRO-010-4 or TOP-003-5. (Such information may also inform the Balancing Authority's Operating Process for extreme cold weather under proposed Reliability Standard TOP-002-5 Requirement R8.)

Third, proposed Reliability Standard EOP-012-2 would include start-up issues within the generating unit cold weather data that must be identified by the Generator Owner (Requirement R1 Part 1.2.1.3). This revision corresponds to Requirement R8 of proposed Reliability Standard

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[72] February 2021 Event Joint Inquiry Report at 184.

TOP-002-5, which would require each Balancing Authority to consider generator start-up issues (among other generating unit limitations) when calculating an adequate reserve margin during extreme cold weather periods.[73] The reliability benefit of requiring each Generator Owner to identify this information with its other generating unit cold weather operating data is that it would help ensure that this information is readily available for the Balancing Authority on request. The Balancing Authority, armed with better knowledge of which units may experience start up issues and under what conditions, could better plan for reliable operations during such conditions.

Fourth, and lastly, proposed Reliability Standard EOP-012-2 would require consideration of the effects of precipitation and the cooling effects of wind when providing generating unit minimum temperatures under Requirement R1 Part 1.2.2. This revision addresses Recommendation 1c of the February 2021 Event Joint Inquiry Report, which recommended standards revisions to "require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data."[74] This recommendation followed from the joint inquiry team's conclusion that "ambient temperatures alone do not serve as a basis to predict whether a generating unit can perform during predicted cold weather" and that, for "81 percent of the generating units outaged [during the event], at the time the outage occurred, ambient temperatures were above the generating unit's stated design criteria."[75] Proposed Requirement R1 Part 1.2.2 does not specify a minimum wind speed to be considered due

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[73] Proposed Reliability Standard TOP-002-5 Requirement R8 would require each Balancing Authority to have an extreme cold weather Operating Process for its area, addressing preparations for and during extreme cold weather periods. This Operating Process must include, among other things, a method for determining an adequate reserve margin during the extreme cold weather period considering generating unit operating limitations in previous extreme cold weather periods, including capability and availability, fuel supply and inventory concerns, start-up issues, fuel switching capabilities, and environmental constraints.

[74] February 2021 Event Joint Inquiry Report, *supra* note 6, at 186.

[75] *See id.* at 187 (noting that for "81 percent of the of the generating units outaged, at the time the outage occurred, ambient temperatures were above the generating unit's stated design criteria.")

to the difficulty of doing so using historical data or design information.[76]

In summary, proposed Reliability Standard EOP-012-2 Requirement R1 would improve upon Reliability Standard EOP-012-1 by ensuring requirements for the calculation of the Extreme Cold Weather Temperature and identification of generating unit data would remain applicable to all Generator Owners owning BES generating units, consistent with the February 2023 Order, while also providing that this information be reviewed periodically and include consideration of further factors, such as start-up issues, wind speed, and precipitation, that may impact the generating unit's availability in cold weather.

D. Requirements R2 and R3: Requirements to Implement Freeze Protection Measures for New and Existing BES Generating Units

Proposed Reliability Standard EOP-012-2 Requirements R2 and R3 carry forward the cold weather operational capability requirements for new and existing BES generating units from Reliability Standard EOP-012-1 Requirements R1 and R2, respectively. Under these requirements, Generator Owners would be required to implement freeze protection measures at applicable BES generating units to provide the capability to operate at the Extreme Cold Weather Temperature for the unit. Proposed Reliability Standard EOP-012-2 would continue to impose more stringent requirements for new BES generation units, consistent with Reliability Standard EOP-012-1. The technical basis for the original requirements is discussed in detail in NERC's petition for approval of proposed Reliability Standards EOP-011-3 and EOP-012-1.[77] Proposed Reliability Standard EOP-012-2 Requirements R2 and R3 reflect improvements and clarifications to advance reliability

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[76] Similar considerations prompted the development of different operational capability requirements for new and existing generation with respect to the cooling effects of wind under Reliability Standard EOP-012-1 Requirements R1 and R2 (proposed Reliability Standard EOP-012-2 Requirements R2 and R3).

[77] *See* EOP-011-3/EOP-012-1 Petition at 33-37.

and improve the overall clarity and readability of the standard. In so doing, the proposed requirements address Commission directives from the February 2023 Order.

Proposed Requirement R2 would revise the prior version, Reliability Standard EOP-012-1 Requirement R1, as follows:

> **~~R1.~~ R2**. ~~For each~~ Applicable to generating units with a commercial operation date ~~subsequent to [Effective Date of this Requirement],~~ on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall:
>
> - Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate ~~for~~ at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours ~~at the Extreme Cold Weather Temperature for the unit(s), assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components~~; or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or
> - ~~Explain in a declaration any technical, commercial, or operational constraints, as defined by the Generator Owner,that preclude the ability to implement appropriate freeze protection measuresto provide capability of operating for twelve (12) hours at the documented Extreme Cold Weather Temperature.~~ Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.
>
> [fn1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Proposed Requirement R3 would revise the prior version, Reliability Standard EOP-012-1 Requirement R3, as follows:

> **R3**. ~~For each~~ Applicable to generating unit(s) in commercial operation prior to ~~[Effective Date of this requirement],~~ October 1, 2027: ~~the~~ Each Generator Owner,

for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall:

- ~~ensure its generating unit(s) add new or modify existing freeze protection measures as needed to~~ Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate ~~for a period of not less than one (1) hour~~ at the unit(s)' Extreme Cold Weather Temperature~~.~~; or
- ~~Generating unit(s)that are not capable of operating for one (1) hour at its Extreme Cold Weather Temperature shall d~~Develop a Corrective Action Plan ~~(CAP) for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3~~ to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

[fn2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

The revisions in these two requirements are discussed by topic area below.

1. Dates to Establish "New" vs. "Existing" Generating Units

As a threshold matter, in proposed Reliability Standard EOP-012-2, Requirements R2 and R3 would clarify the date past which Generator Owners must comply with more stringent requirements for new BES generating units. Both proposed Requirements R2 and R3 would replace the phrase "[Effective date of this requirement]" in Reliability Standard EOP-012-1 with a date certain, October 1, 2027. In establishing this date, the standard drafting team considered the original proposed implementation plan for Reliability Standard EOP-012-1, as well as fact that new generation coming online prior to this date is likely to be significantly advanced past the design phase when incorporating measures to provide capability in sustained wind conditions would be most cost effective and reasonable. Generating units that are currently operational or become operational before October 1, 2027 would be subject to proposed Requirement R3.

2. Clarifications to the Applicability of Requirements to Implement Freeze Protection Measures, Generally

Proposed Reliability Standards EOP-012-2 Requirements R2 and R3 would clarify the BES generating unit(s) for which the Generator Owners must comply. Consistent with the intent of Reliability Standard EOP-012-1, Generator Owners owning generating units that are not expected to run in freezing temperatures would continue to be exempt from requirements to implement freeze protection measures on those units under proposed Reliability Standard EOP-012-2. As noted previously, however, NERC modified the Applicability section of proposed Reliability Standard EOP-012-2 so that it applies generally to all Generator Owners and all BES generating units. Therefore, to exclude BES generating units that do not operate in freezing conditions from requirements to implement freeze protection measures, restrictive language to that effect is included in proposed Requirements R2 and R3. This language is carefully tailored so that the requirements place the responsibility for cold weather preparedness on the owners of those BES generating units that are being depended on to operate in cold weather and on which the reliability of the system depends, while avoiding undue burden for the owners of generating units that are not expected to operate in cold weather.

For a generating unit to be subject to Requirement R2 or Requirement R3, two conditions would need to be met. First, the Extreme Cold Weather Temperature for the location, as calculated in accordance with Requirement R1, must be at or below a freezing temperature (32 degrees Fahrenheit or zero degrees Celsius). This first condition reflects the standard drafting team's determination that it would be unduly burdensome to require Generator Owners to implement freeze protection measures for units that, based on statistical analysis, are highly unlikely to experience freezing conditions. This limitation is consistent with the intent of the Applicability section of Reliability Standard EOP-012-1. Second, the Generator Owner must operate the unit in freezing conditions, whether that is due to contractual or other obligations, or by committing itself to operate such as through participation in the winter markets. While generally consistent with the standard drafting team's intent in drafting Reliability Standard EOP-012-1, the condition in EOP-012-1 that BES generating units must commit or be obligated to serve Balancing Authority load for "a continuous run of four hours or more" at or below freezing temperatures is removed in proposed Reliability Standard EOP-012-2. In the February 2023 Order, the Commission found that such "continuous run" language could be confusing or unclear, particularly with respect to intermittent energy resources which may not run continuously for four hours or more.[78] To address this concern, and to ensure that these requirements are applicable to all generating units that are being depended on to operate in cold weather, proposed EOP-012-2 Requirements R2 and R3 would apply to any unit that is obligated or self-commits to run[79] in freezing conditions, regardless of the duration.

As with Reliability Standard EOP-012-1, a narrowly tailored exemption exists in proposed Reliability Standard EOP-012-2 for BES generating units that do not self-commit or are not required to operate in freezing temperatures but may be called upon to operate during freezing conditions to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies. The standard drafting team determined that continuing to include an exemption for

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[78] February 2023 Order at P 57 ("For example, it is unclear how the term "continuous run" would apply to intermittent resources, which by their nature are variable and, therefore, do not always run continuously. Ensuring clear applicability to intermittent generators is critical to ensuring that enough generating units are available during cold temperatures.").

[79] As NERC explained previously, the standard drafting team recognized that a commitment or obligation to run may look different depending on the market or area in which the generating unit is located. BES generating units may be committed or obligated to run in freezing conditions under tariff obligations, state requirements defined by regulatory authorities, or other contractual arrangements, rules, or regulations applicable to their areas. *See* EOP-011-3/EOP-012-1 Petition at 31.

such generating units would be in the best interests of reliability. Such an exemption would encourage generating units that do not normally operate in freezing conditions to participate in mitigating Emergency conditions, if they are able to do so, by avoiding a disincentive that may result from subjecting these units to the full requirements for conditions under which they would not plan to run normally.

3. Clarifications to the Applicability of Requirement R2 Regarding Intermittent Energy Resources

Proposed Reliability Standard EOP-012-2 Requirement R2 would clarify the applicability of this requirement to intermittent energy resources. In the February 2023 Order, the Commission directed NERC to clarify Reliability Standard EOP-012-1 Requirement R1 to ensure that generating units that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the standard.[80] Proposed Requirement R2 would address this directive by requiring owners of generating units that are intermittent energy resources to implement freeze protection measures that provide the capability to operate at the Extreme Cold Weather Temperature for the *maximum operational duration* of the unit, if that duration is less than twelve (12) continuous hours. This revision would help ensure that such units are implementing freeze protection measures to provide capability to operate at the Extreme Cold Weather Temperature for the maximum time for which they have resources available if that time is less than twelve (12)

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[80] February 2023 Order at P 7; *see also id.*at P 57.

continuous hours, and it would clarify that such resources are not exempt from compliance with the requirement consistent with the February 2023 Order.

4. Revisions to the Required Performance

Proposed Reliability Standard EOP-012-2 Requirement R2 would further improve upon the corresponding requirement in Reliability Standard EOP-012-1 by requiring Generator Owners of new generating units to develop Corrective Action Plans if they do not have the required freeze protection measures. Under Reliability Standard EOP-012-1, owners of such units would either be required to implement such measures or explain in a declaration the constraints that precluded the implementation of measures. Proposed Requirement R2 for new generating units would mirror the structure of proposed Requirement R3 for existing generation units. This revision would drive ongoing reliability improvements, through Corrective Action Plans, if a new generator does not have sufficient freeze protection measures under Requirement R3 at the time of commercial operation. This may be the case, for example, if a new generating unit is too far along in the design process to meet the more stringent requirements of proposed Requirement R3 when it begins commercial operation on or soon after October 1, 2027.[81] Proposed Requirement R7, discussed below, would specify the requirements for Corrective Action Plans. Ultimately, while Generator Owners may determine that they are not able to implement all corrective measures identified in a Corrective Action Plan for a new generating unit due to identified constraints,[82] Corrective Action Plans may specify other corrective actions that Generator Owners can implement to enhance their

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[81] In developing this requirement, the standard drafting team considered comments that design decisions for new generating units or facilities are made well in advance of the start of construction and may in fact be made years in advance. *See, e.g.* Exhibit F Item 11, October 27, 2023 Consideration of Comments at 104 (Comments of ACES). Rather than prolong the date by which new generating units must be compliant with more stringent operational capability requirements, the standard drafting team determined to include a Corrective Action Plan option for such units to drive further reliability improvements over time.

[82] Constraints which may preclude the implementation of one or more corrective actions in a Corrective Action Plan are discussed in detail in Sections V.H and V.I below, in the discussion of proposed EOP-012-2 Requirements R7 and R8.

reliability in cold weather. Requirement R8 would address the ongoing review of constraints for continued validity.

Proposed Reliability Standard EOP-012-2 Requirement R3 would further improve upon the corresponding requirement in Reliability Standard EOP-012-1 by removing the provision that existing generating units operate for a period of not less than one (1) hour at the Extreme Cold Weather Temperature. In the February 2023 Order, the Commission expressed concern that this one-hour requirement "is too short of a period to adequately meet the purpose of the Standard to ensure generating units 'mitigate the reliability impacts of extreme cold weather."[83] As the standard drafting team did not originally intend for the requirement for existing generating units to be a one-hour reliability requirement,[84] the one-hour statement has been removed in proposed Requirement R3.

In addition to the above-described revisions, other revisions in proposed Requirement R2 and R3 would clarify that the requirement is to implement freeze protection measures for Cold Weather Critical Components to provide operational capability to operate at the Extreme Cold Weather Temperature for the specified duration. Additionally, minor revisions and format changes are made for readability and consistency among the requirements. These changes, which are shown in the blackline above, are also shown in Exhibit A.

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[83] February 2023 Order at P 90.

[84] *See, e.g.*, EOP-011-3/EOP-012-1 Petition at Exhibit C (Technical Rationale for Reliability Standard EOP-012-1) at 5 (explaining the provision as follows: "The SDT created a requirement to develop a [Corrective Action Plan] for generating units in commercial operation prior to the effective date of EOP-012-1 that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of one hour of continuous operation at their identified Extreme Cold Weather Temperature. The SDT chose one hour as opposed to 12 hours for existing generation to recognize the fact that it is extremely difficult to perform the same level of design analysis, and/or documented historical operation on existing generation as on new generation.")

E. Requirement R4: Requirement to Implement and Maintain a Cold Weather Preparedness Plan

Proposed Reliability Standard EOP-012-2 Requirement R4 would carry forward the requirement for Generator Owners to implement and maintain cold weather preparedness plans; this requirement is found in currently effective Reliability Standard EOP-011-2 as Requirement R7 and is revised in Reliability Standard EOP-012-1 Requirement R3.

Proposed Reliability Standard EOP-012-2 Requirement R4 would further modify Reliability Standard EOP-012-1 Requirement R3 as follows:

R~~3~~4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum:

- **~~3~~4.1** The lowest calculated Extreme Cold Weather Temperature for ~~their~~ each unit~~(s)~~, ~~including the calculation date and source of temperature data~~ as determined in Requirement R1[3];
- **4.2** The generating unit cold weather data, as determined in Requirement R1.2;
- **~~3.2.~~4.3** Documentation identifying ~~the~~ Generator Cold Weather Critical Components;
- **~~3.3~~4.4** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which ~~may~~ includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and
- **~~3.4~~4.5** Annual inspection and maintenance of generating unit(s) freeze protection measures.
- ~~**3.5** Generating unit(s) cold weather data, to include:~~
  - ~~**3.5.1** Generating unit(s) operating limitations in cold weather to include:~~
    - ~~**3.5.1.1** Capability and availability;~~
    - ~~**3.5.1.2** Fuel supply and inventory concerns;~~
    - ~~**3.5.1.3** Fuel switching capabilities; and~~
    - ~~**3.5.1.4** Environmental constraints.~~
  - ~~**3.5.2** Generating unit(s) minimum:~~

- ~~Design temperature;~~
- ~~Historical operating temperature; or~~
- ~~Current cold weather performance temperature determined by an engineering analysis.~~

[fn3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

Many of the revisions in proposed Requirement R4 are organizational in nature. As discussed more fully in Section V.C above, proposed Reliability Standard EOP-012-2 contains a new consolidated requirement, Requirement R1, that would address the identification and periodic review of the Extreme Cold Weather Temperature and generating unit cold weather data. Under proposed Requirement R4, Generator Owners would include the information determined in accordance with proposed Requirement R1 in their cold weather preparedness plans; therefore, the data identification provisions that compromised Requirement R3 Part 3.5 in Reliability Standard EOP-012-1 are removed. Proposed Requirement R4 would add a footnote to clarify that the cold weather preparedness plan shall reflect the lowest calculated Extreme Cold Weather Temperature for the unit, even if subsequent re-calculations indicate warming temperatures. Presently, Reliability Standard EOP-012-1 Requirement R4 Part 4.1 provides that Generator Owners shall update the cold weather preparedness plan if a re-calculated Extreme Cold Weather Temperature is lower than the previous lowest calculation.

As discussed more fully in Section V.B above, revisions to the Applicability of proposed Reliability Standard EOP-012-2 would ensure that all Generator Owners with BES generating units are required to develop cold weather preparedness plans consistent with currently effective Reliability Standard EOP-011-2. These revisions are consistent with the Commission's directive to that effect in the February 2023 Order.

F. Requirement R5: Requirement to Provide Annual Training on Cold Weather Preparedness Plans

Proposed Reliability Standard EOP-012-3 Requirement R5 is an existing requirement that is carried forward substantively unchanged from Reliability Standard EOP-012-1. As discussed more fully in Section V.B above, revisions to the Applicability of proposed Reliability Standard EOP-012-2 would ensure that all Generator Owners with BES generating units are required to develop cold weather preparedness plans and to provide training on those plans, consistent with currently effective Reliability Standard EOP-011-2. A revision to the currently effective requirement, which was approved in Reliability Standard EOP-012-1, would clarify that this training shall be performed on an annual basis.

G. Requirement R6: Requirement for Corrective Action Plans to Address Generator Cold Weather Reliability Events

Proposed Reliability Standard EOP-012-2 Requirement R6 would carry forward the requirement from Reliability Standard EOP-012-1 that each Generator Owner experiencing an outage, failure to start, or derate due to freezing at or above their Extreme Cold Weather Temperature develop a Corrective Action Plan to address the identified causes. Proposed Reliability Standard EOP-012-2 Requirement R6 reflects revisions to clarify the applicability of the requirement and improve its readability, as follows:

> **R6.** Each Generator Owner shall, for each ~~that owns a~~ generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall ~~develop a CAP,~~ be developed within 150 days or by July 1, whichever is earlier, ~~that~~ and contain~~s~~ at a minimum:
>
> **6.1** A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

> **6.2** A review of applicability to similar equipment at ~~other~~ generating units owned by the Generator Owner; and
>
> **6.3** An identification of any ~~temporary~~ operating limitations or impacts to the cold weather preparedness plan~~,~~ that would apply until execution of the corrective action(s) identified in the ~~CAP~~ Corrective Action Plan.
>
> [fn4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Proposed Reliability Standard EOP-012-2 Requirement R6 would clarify which BES generating unit(s) must comply with this requirement. Consistent with the intent of the standard drafting team in developing Reliability Standard EOP-012-1, generating units that are not expected to run in freezing temperatures would continue to be exempt from requirements to implement freeze protection measures under Reliability Standard EOP-012-2. As noted previously, however, NERC modified the Applicability section of proposed Reliability Standard EOP-012-2 so that it applies generally to all Generator Owners and all BES generating units. Therefore, to exclude BES generating units that do not operate in freezing conditions from requirements to develop Corrective Action Plans in response to freezing issues, targeted language to that effect is included in proposed Requirement R6. This language is identical to that included in Requirements R2 and R3 relating to the implementation of freeze protection measures, and it is discussed in detail in Section V.D.2, above. Implementation of Corrective Action Plans is addressed in proposed Requirement R7, discussed in the following section.

In addition to the revisions to Requirement R6, NERC proposes to revise the definition of the term "Generator Cold Weather Reliability Event" used in the requirement. The term "Generator Cold Weather Reliability Event" defines the types of reliability-related events that must be addressed through the development of a Corrective Action Plan. NERC proposes to revise the approved definition of this term as follows:

> **Generator Cold Weather Reliability Event** - One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g. sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:
>
> (1) a forced derate of more than 10% of the total capacity of the unit, but ~~and exceeding~~ not less than 20 MWs for longer than four hours in duration;
>
> (2) a start-up failure where the unit fails to synchronize within a specified start-up time; or
>
> (3) a Forced Outage.

The revisions to this definition would clarify that Corrective Action Plans would be required under Requirement R6 when the triggering event (i.e., a forced derate meeting the specified criteria, a start-up failure, or a Forced Outage) was due to freezing of equipment or the impacts of freezing precipitation. Key Recommendation 1d from the February 2021 Joint Inquiry Report recommends that Generator Owners develop and implement a Corrective Action Plan when generating units experience outages, failures to starts, or derates due to freezing.[85] The joint inquiry team identified that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades, and that protecting such equipment against icing and freezing could have reduced outages significantly in each of the

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[85] *See* February 2021 Event Joint Inquiry Report at 187, Key Recommendation 1d, which recommends standards enhancements as follows:

> To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The Standards Drafting Team should specify the specific timing for the CAP to be developed and implemented after the outage, derate or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

three regions affected by the event.[86] In developing proposed Reliability Standard EOP-012-2, the standard drafting team determined that it was important to identify freezing precipitation specifically within the definition of Cold Weather Reliability Event, given the significant role freezing participation played in the outages and derates experienced during the February 2021 Event. This revision is also consistent with Key Recommendation 1c, which recommended standards changes to require Generator Owners to account for the effects of precipitation (as well as the cooling effects of wind) when providing temperature data.[87]

H. Requirement R7: Requirements for Corrective Action Plans, Generally

Proposed Reliability Standard EOP-012-2 Requirement R7 would carry forward the basic requirement for implementing any Corrective Action Plans developed under the EOP-012 standard, but with significant improvements to the content, structure, and overall organization of related requirements. Proposed Requirement R7 would include new implementation deadlines for implementing corrective actions, and it would also clarify the types of constraints that may preclude the implementation of one or more corrective actions. These revisions would address the Commission's directives in the February 2023 Order.

Proposed Reliability Standard EOP-012-2 would modify Reliability Standard EOP-012-1 Requirement R7 as follows:

> **R7.** Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall:
>
> **7.1** Include a timetable for implementing the selected corrective action(s) that shall:
>
> **7.1.1.** List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within

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[86] *Id.* at 167.

[87] *Id.* at 186 ("Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.") (internal citation omitted).

24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.~~1~~2. Implement ~~each~~ the ~~CAP~~ Corrective Action Plan ~~developed pursuant to Requirements R2, R4, or R6,~~ in accordance with the specified timetables in Requirement R7 Part 7.1; ~~or explain in a declaration why corrective actions are not being implemented due to any technical, commercial, or operational constraints as defined by the Generator Owner.~~

7.~~2~~3 Update ~~each~~ the ~~CAP~~ Corrective Action Plan action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) ~~change, until completed~~ exceed the timelines in Requirement R7 Part 7.1; and

7.4 Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

The NERC *Glossary* defines a "Corrective Action Plan" as a "list of actions and an associated timetable for implementation to remedy a specific problem." Proposed Requirement R7 Parts 7.1 and 7.2 would require each Generator Owner to include timetables for implementing corrective actions that are within specified timeframes and to implement corrective actions in accordance with those timetables. These timetables would call for the completion of corrective actions addressing existing equipment or freeze protection measures within 24 months of developing the Corrective Action Plan, and the completion of corrective actions calling for new equipment or freeze protection measures within 48 months. Requirement R7 Part 7.1.3 would require the Generator Owner to update its cold weather preparedness plan accordingly, such as to reflect any new or modified freeze protection measures. Requirement R7 Part 7.3 would require each Generator Owner to keep its Corrective Action Plan up to date; should corrective actions timetables need to change, the Generator Owner would be required to update its plan with justification. Lastly, Requirement R7 Part 7.4 would address the instance where a Generator Owner may not be able to implement one or more corrective actions. Proposed Reliability Standard EOP-012-2 Requirement R7 represents a significant improvement upon the corresponding requirement for Corrective Action Plans in the approved Reliability Standard EOP-012-1, for the reasons discussed below.

1. Proposed Requirement R7 Includes Maximum Timeframes for the Completion of Corrective Action Plan Measures

Proposed Reliability Standard EOP-012-2 Requirement R7 would include maximum timeframes for the completion of any required Corrective Action Plans. In paragraph 79 of the February 2023 Order, the Commission expressed concern that Reliability Standard EOP-012-1 lacked any timeframes for the completion of corrective actions and directed NERC to "include in the Standard a deadline or maximum period for the implementation completion of corrective action plans under the Standard."[88] To address this directive, the standard drafting team determined to include specific deadlines for the completion of Corrective Action Plan measures within proposed Requirement R7: a maximum period of 24 months for the completion of corrective actions addressing existing freeze protection measures or equipment, and a maximum period of 48 months for the completion of corrective actions addressing new freeze protection measures or equipment.

In determining that these were the appropriate timeframes for the completion of corrective action plan measures addressing freeze protection issues, the standard drafting team considered the Commission's guidance that "industry has been aware of and alerted to the need to prepare

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[88] February 2023 Order at P 79.

their generating units for cold weather since at least 2011."[89] The standard drafting team considered the need to address freeze protection issues as soon as possible, given the risks multiple severe cold weather events in recent years have presented to reliability. The standard drafting team also considered, however, that its proposed requirements for Corrective Action Plans are broad in nature and contemplate addressing similar issues across a generation fleet. As such, Generator Owners would need time to consider whether corrective action measures need to be taken not just at one unit experiencing an issue but at similar units susceptible to similar issues. Depending on this analysis, Generator Owners may need to undertake engineering and design of freeze protection measures, engage in project development activities, and budget for associated expenses, while also considering material supply lead times, outage scheduling, skilled labor availability, and issues with startup and commissioning.[90] Considering these factors, the standard drafting team concluded that the proposed 24-month and 48-month Corrective Action Plan timeframes represent a reasonable balance between the need to address freezing issues promptly and the significant work and coordination that may be required to implement corrective measures, particularly across a fleet of units.

While the standard drafting team determined that these timelines were appropriate for most, if not all, cases, the standard drafting team recognized that certain measures may take longer to implement, particularly those requiring scheduling outages. To not discourage the implementation of more effective corrective measures that may take longer and be more complicated to implement over less-effective measures that may be more quickly implemented, the standard drafting team determined that some flexibility to exceed the Corrective Action Plan deadlines would be

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[89] *See id.* at P 10.

[90] *See* Exhibit C (Technical Rationale) at 17.

appropriate, provided the circumstances are justified adequately. As explained in Section VII, NERC plans a comprehensive review in the coming years to monitor this and other aspects involving the implementation of the EOP-012 standard.

2. Connecting Corrective Action Plan Measures to Cold Weather Preparedness Plans

Proposed Requirement R7 adds a new Part, Requirement R7 Part 7.1.3, in the interest of completeness. This provision would help ensure that updates made through Corrective Action Plans are carried through to the cold weather preparedness plans under Requirement R4 to avoid future issues.

3. Further Defining the Circumstances under which a Generator Owner May Not Complete all Corrective Actions

Proposed Reliability Standard EOP-012-2 Requirement R7 would improve upon the corresponding requirements in Reliability Standard EOP-012-1 by reframing and clarifying the circumstances under which a Generator Owner may determine that it will not implement one or more selected corrective actions in a Corrective Action Plan. In Reliability Standard EOP-012-1, these circumstances are described as "technical, commercial, or operational constraints as defined by the Generator Owner" that precluded the implementation of the corrective actions. Consistent with the February 2023 Order, proposed Requirement R7 would clarify the circumstances that comprise such constraints and would provide auditable criteria around their use.

Reliability Standard EOP-012-1 Requirement R7 provides that each Generator Owner shall implement each required Corrective Action Plan or "explain in a declaration why corrective actions are not being implemented due to any technical, commercial, or operational constraints as defined by the Generator Owner." As NERC explained in its EOP-011-3/EOP-012-1 Petition, this provision reflected the standard drafting team's determination that, in some instances, there may be technical, commercial, or operational constraints that prevent the Generator Owner from implementing one or more corrective actions to address an identified issue regarding a Cold Weather Critical Component. For example, the absence of commercially viable technical solutions may be one such constraint. Another example may be the winterization of a component that reduces the reliability of the generating unit in warm weather conditions. The standard drafting team determined that it was important to recognize these constraints in the proposed standard to avoid potential unintended consequences that could themselves have negative impacts on reliability; specifically, the premature retirement of generating units that are unable to implement corrective actions due to these constraints or the withdrawal of those units from the winter markets.[91]

In the February 2023 Order, the Commission expressed concerns with this provision and a similar provision in Requirement R1, stating:

> We share commenters' concerns regarding the uncertainty created by the proposed technical, commercial, or operational constraint provisions in Requirements R1 and R7, and that without criteria to guide the generator owners, or guardrails on what constitutes a legitimate technical, commercial, or operational constraint, entities may either benefit financially by avoiding the purpose of the Standard altogether or have declarations without auditable elements.[92]

Thus, while finding Reliability Standard EOP-012-1 offers improvements to reliability and approving it on that basis, the Commission directed NERC to modify the standard as follows:

> Accordingly, we direct NERC, pursuant to section 215(d) of the FPA, to develop and submit modifications to Reliability Standard EOP-012-1 Requirements R1 and R7 to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures and to ensure that the constraint declarations may not be used to opt-out of compliance with the Standard or obligations set

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[91] *See* EOP-011-3/EOP-012-1 Petition at 43-44.

[92] February 2023 Order at P 64.

> forth in a corrective action plan. Specifically, we direct NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7. We direct NERC to submit the revised Reliability Standard no later than 12 months after the date of issuance of this order.[93]

Proposed Reliability Standard EOP-012-2 Requirement R7 reflects a more comprehensive approach to Corrective Action Plans, as discussed above, and this extends to the explanation of the types of constraints that may preclude implementation of corrective actions while not placing a Generator Owner in violation of the standard. Proposed Reliability Standard EOP-012-2 contains a new defined term, proposed for inclusion in the NERC *Glossary*, that would define the conditions that may preclude a Generator Owner from implementing one or more corrective actions in conformance with the standard. The proposed definition of Generator Cold Weather Constraint is as follows:

> **Generator Cold Weather Constraint** – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.
>
> Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:
>
> - Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
> - Could not have been expected to accomplish the desired result; or
> - Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or

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[93] *Id.* at P 66.

> safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

The proposed definition of Generator Cold Weather Constraint is based generally on the concept of "good utility practice", a term used in the Open Access Transmission Tariff[94] and other documents governing utilities, with modifications suitable to the context of a generator cold weather Reliability Standard. The proposed definition would specify that the standard would not require the *best* solutions, which could result in more constraints being declared, but rather *acceptable* solutions. In this context, the definition of Generator Cold Weather Constraint captures those circumstances, expected to be limited, where a given corrective action: (1) calls for the implementation of solutions that have not been proven; (2) calls for implementation of solutions which are not in existence; (3) calls for the implementation of measures that can only be achieved at a prohibitive cost; or (4) calls for the implementation of measures that are not consistent with good business practices, reliability, or safety. The standard drafting team determined that the proposed definition should remain flexible to support the adoption of new freeze protection practices, methods, or technologies as they are developed, but should not inadvertently discourage

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[94] *Pro Forma Open Access Transmission Tariff* at Section 1.15 (eff. March 14, 2022). The *pro forma* OTT defines "Good Utility Practice" as follows:

> Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4).

entities from piloting new approaches by requiring the widespread implementation of novel solutions or solutions not yet proven to be effective in similar climate conditions.

The Technical Rationale for proposed Reliability Standard EOP-012-2 provides examples of reasons for not implementing one or more identified corrective actions which, depending on the circumstances, may constitute a Generator Cold Weather Constraint:

- Warranties that would be voided by application of a freeze protection measure;
- Accelerated retirement of an existing generating unit;
- Cancellation of new generating unit(s);
- Reduction in summer capability;
- Introduces an increased personnel or safety risk;
- Introduces a risk of noncompliance with environmental regulations;
- Compromised ability to provide ancillary services; or
- Technology not used by a significant portion of the electric utility industry.[95]

In developing the proposed definition of Generator Cold Weather Constraint, the standard drafting team concluded that it could not develop a definitive list of all permitted circumstances that may preclude the implementation of freeze protection measures for all generating unit types across North America and all potential freeze protection solutions in existence now or in the future. The standard drafting team further determined it would not define a specific, continent wide accounting metric that may render a freeze protection measure cost "unreasonable," given wide differences in circumstances and practical difficulties in application. The standard drafting team, however, has set a high bar by specifying that a cost may be "unreasonable" where implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require

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[95] *See* Exhibit C (Technical Rationale) at 4.

prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life. In so doing, the standard drafting team sought to balance concerns that EOP-012 requirements, intended to provide a high bar for generators that operate in cold weather, could inadvertently lead to fewer generators choosing to operate in cold weather and thereby contribute to lessened cold weather reliability. The proposed definition would permit flexibility to accommodate the different circumstances that may reasonably preclude the implementation of corrective action measures, but also provide significant clarity to those circumstances and affirm that they are intended to be limited. As such, the proposed definition of Generator Cold Weather Constraint would address the concerns underlying the Commission's directive in the February 2023 Order.[96]

To further address concerns that declaring such constraints could be used by some entities to opt out of compliance with the standard entirely, proposed Requirement R7 Part 7.4 and the associated Technical Rationale would clarify that a Generator Owner would not be exempt from taking *any* actions in a Corrective Action Plan due to a declared constraint; only those particular corrective actions that meet the criteria of a Generator Cold Weather Constraint.[97] If suitable corrective actions exist that would provide additional protections for reliability, Generator Owners are expected to implement them.[98] Further, each Generator Owner declaring a constraint would be required, under proposed Requirement R8 discussed in the following section, to review that constraint periodically for continued applicability. Ultimately, each Generator Owner would be

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[96] *See* discussion at *id.* at 4-5.

[97] As discussed in the context of the proposed revisions to Requirement R2 (Requirement R1 in EOP-012-1), all Generator Owners with new BES generating units that are not able to meet the required capability will be required to develop a Corrective Action Plan in accordance with proposed Requirement R7.

[98] *See* Exhibit C (Technical Rationale), at 18 ("If one or more actions within a C[orrective] A[ction] P[lan] fall under a declaration, it is the intent of the S[tandard] D[rafting] T[eam] that only those affected actions would not be implemented as part of the CAP. The remaining actions should be implemented.")

responsible for demonstrating that its specific reasons for not implementing a particular corrective action in Corrective Action Plan meet one or more of the criteria provided in the definition above.

4. NERC's Expectations Regarding the Use of Generator Cold Weather Constraints, and Ongoing Compliance Monitoring

NERC expects that, consistent with the standard drafting team's intent, Generator Cold Weather Constraint declarations will be used only in limited circumstances. The ERO Enterprise's analysis of the responses to the recent Level 3 Alert: Essential Actions to Industry regarding cold weather preparedness supports this expectation.[99] The majority of the Generator Owners responding to NERC's Level 3 Alert (96%) indicated that they have calculated, or will expect to calculate, an Extreme Cold Weather Temperature for all of their owned capacity prior to winter 2023-2024; the overwhelming majority of those Generator Owners (90%) responded that 91-100 percent of their net winter capacity, in MW, would be capable of operating at the Extreme Cold Weather Temperature.[100] Therefore, NERC expects that there will be only a limited number of Generator Owners that would need to develop a Corrective Action Plan for their existing units due to an inability to meet the capability requirements of proposed Reliability Standard EOP-012-2

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[99] NERC may issue Alerts to Bulk Power System owners, operators, or users at one of three levels under Section 810 of the NERC Rules of Procedure. A Level 1 (Advisory) alert is purely informational, intended to advise of findings and lessons learned. A Level 2 (Recommendations) alert recommends specific actions be taken. A Level 3 (Essential Actions) alert describes specific actions that NERC has determined are essential for entities to implement to ensure the reliability of the Bulk-Power System. Entities receiving a Level 2 (Recommendations) or Level 3 (Essential Actions) alert are required to provide reports of actions taken and timely updates on progress towards resolving the issues raised in the Recommendations or Essential Actions.

More information on NERC's alerts issued to address cold weather preparedness, including the Level 3 Alert issued in May 2023, the Level 2 Alert issued in September 2022, and the Level 2 Alert issued in August 2021, are available on NERC's Alerts page at https://www.nerc.com/pa/rrm/bpsa/Pages/Alerts.aspx.

[100] NERC received responses from approximately 1,160 Generator Owners, representing the vast majority of U.S.-based Generator Owners on the NERC Compliance Registry that continued to own generation assets at the time the alert was issued. For more discussion of the responses, *see* Findings from Level 3 Essential Actions for Cold Weather Preparations for Extreme Cold Weather Events Alert (Nov. 6, 2023), available at https://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/Cold%20Weather%20Preparations%20for%20Extreme%20Weather%20Events%20III%20Public%20Report.pdf.

Requirement R3 (first bullet). Of that limited number, NERC expects even fewer would be in a position where a constraint may be declared.

Under proposed Reliability Standard EOP-012-2 Requirement R6, Corrective Action Plans would also be required where a Generator Owner experiences a Generator Cold Weather Reliability Event at or above the Extreme Cold Weather Temperature for the unit due to freezing. NERC's analysis of the Level 3 Alert responses suggests that constraint use would be limited in that context as well. Of the limited number of Generator Owners that reported experiencing a Cold Weather Reliability Event in the 2022-2023 winter season (22%), the majority (57%) indicated that none of their net winter capacity would be considered at risk of being impacted for the same causes for the 2023-2024 winter season. While further analysis will be required, based on these responses, NERC expects that the circumstances under which Generator Owners may consider constraints preventing correction of known freezing issues would be limited as well.[101]

While it is NERC's expectation that Generator Owners will declare Generator Cold Weather Constraints only in limited circumstances, and the number and MW of units affected would be relatively small, the ERO Enterprise intends to monitor the implementation of this requirement actively to ensure that Generator Owners are taking appropriate actions to winterize their units consistent with the intent of the standard. Multiple cold weather reliability events since 2011 have demonstrated the risks of not doing so. As discussed in Section VII, NERC is

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[101] Of the total 1160 Generator Owner responses to the Level 3 Alert, 252 Generator Owners, or 22%, indicated they experienced a Cold Weather Reliability Event in the 2022-2023 winter season. Of that number, 160, or 57%, indicated that none of their net winter capacity would be considered at risk of being impacted for the same causes for the 2023-2024 winter season.

Of the 62 Generator Owners (22%) that indicated 91-100% of their net winter capacity MW would be considered at risk due to the same causes, the majority appear to be wind generators citing some variant of blade icing as the cause of the prior event. NERC has observed that many entities have faced challenges in winterizing wind generation effectively for icing conditions. Developing new methods and technologies remains an active area of research.

developing a comprehensive strategy to coordinate cold weather activities to help ensure constraints are used appropriately in the overall context of advancing cold weather reliability.

I. Requirement R8: Ongoing Requirements for Generator Owners Declaring Generator Cold Weather Constraints

Proposed Reliability Standard EOP-012-2 Requirement R8 is a new requirement that would be applicable to those Generator Owners that have declared a Generator Cold Weather Constraint under Requirement R7. This requirement would specify the ongoing actions that must be taken following that declaration, as follows:

> **R8**. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall:
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> **8.1**. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and
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> **8.2**. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

Proposed Requirement R8 Part 8.1, along with proposed Requirement R7 and the definition of Generator Cold Weather Constraint, address that part of the Commission's directive in the February 2023 Order to clarify the circumstances under which Generator Owners may declare technical, commercial, or operational constraints.[102] As the proposed definition of Generator Owner Cold Weather Constraint refers to "facts known at the time the decision was made," the standard drafting team determined it would be appropriate for Generator Owners declaring such constraints to review them periodically to ensure the facts continue to support such a declaration. For example, if a Generator Owner declares a Generator Cold Weather Constraint based solely on the lack of a proven technology for addressing the issue, but such a technology is later developed, the facts supporting the original declaration may no longer exist.

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[102] February 2023 Order at P 66.

Proposed Requirement R8 Part 8.2 would address that part of the Commission's directive in the February 2023 Order to "identify the appropriate entity that would receive the generator owners' constraint declarations" made under the standard.[103] The standard drafting team determined that the best way to address the reliability concerns underlying this directive would be to require the Generator Owner to communicate the practical impacts of declaring a constraint to the entities that are responsible for grid planning and reliability. Thus, proposed Requirement R8 Part 8.2 would require the Generator Owner to update the operating limitations provided through data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations is made available to the planning and operational entities pursuant to the data collection authority in Reliability Standards TOP-003-5 and IRO-010-4, and it may in turn inform the Balancing Authority's extreme cold weather Operating Process under proposed Reliability Standard TOP-002-5 Requirement R8.

With respect to any compliance-related concerns underlying the Commission's directive in the February 2023 Order, the ERO Enterprise would be responsible for assessing entity compliance with the Generator Cold Weather Constraint provisions in accordance with the Commission-approved compliance processes. The standard drafting team considered a suggestion to implement an ERO pre-approval process for constraint declarations, similar to the technical feasibility exception process for the Critical Infrastructure Protection ("CIP") Reliability Standards.[104] However, the standard drafting team ultimately determined that its proposed definition represented a significant improvement in the standard, and an administrative pre-

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[103] *Id.*

[104] *See* February 5, 2024 Consideration of Comments, Exhibit F at Item 50 p. 50 (comments of the ISO/RTO Standards Review Committee).

approval process in this context was not likely to provide any additional reliability benefit. Further, such a pre-approval process would not be necessary or beneficial for maintaining visibility over constraint declarations, given that the Commission previously directed NERC to monitor and report on this aspect of the EOP-012 standard.[105] The ERO Enterprise's planned activities for monitoring the implementation of the EOP-012 standard are discussed in Section VII, below.

VI. EFFECTIVE DATE OF THE PROPOSED RELIABILITY STANDARDS

NERC respectfully requests that the Commission approve the implementation plan attached to this petition as **Exhibit B**. The proposed implementation plan strikes an appropriate balance between the need to implement the important protections for cold weather in proposed Reliability Standard EOP-012-2 as expeditiously as possible, while recognizing the significant work applicable entities may need to perform to become compliant.[106] The proposed implementation plan would provide notably shorter timeframes for full implementation of proposed Reliability Standard EOP-012-2 than that proposed for Reliability Standard EOP-012-1, so that the grid is made more reliable during extreme cold weather conditions more quickly. As such, the proposed implementation plan is responsive to the reliability concerns underlying the Commission's directives regarding implementation in the February 2023 Order. Approval would be just, reasonable, not unduly discriminatory and in the public interest.

In the February 2023 Order, the Commission approved NERC's proposed effective date for Reliability Standard EOP-012-1 (first day of the first calendar quarter that is 18 months following regulatory approval, or October 1, 2024). However, the Commission declined to approve

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[105] *See* February 2023 Order at PP 93-96.

[106] *See* Order No. 672, *supra* note 8, at P 333 ("In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability.").

any other aspect of NERC's proposed implementation plan for Reliability Standards EOP-011-3 and EOP-012-1, including the phased-in compliance dates for EOP-012-1. Under NERC's original implementation plan, Generator Owners would have had an additional 42 months from the effective date of proposed Reliability Standard EOP-012-1 to come into compliance with the new freeze protection measures requirements in Reliability Standard EOP-012-1 Requirements R1 and R2, and 60 months from the effective date to perform their first five-year update of the Extreme Cold Weather Temperature. No deadlines were proposed for the completion of any Corrective Action Plans developed under Reliability Standard EOP-012-1. In the February 2023 Order, the Commission noted its concerns with the length of the 60-month implementation period for Reliability Standard EOP-012-1 and directed NERC to "revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet," stating that such an approach "will reduce reliability risks more quickly."[107] The Commission further directed NERC to make clarifying changes to the standard "without delaying the effective date of Reliability Standard EOP-012-1."[108]

The proposed implementation plan for Reliability Standard EOP-012-2 would address these directives and advance reliability more quickly than NERC's original 60-month

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[107] February 2023 Order at P 88. *See also id.* at P 10:

> Although we are giving NERC the discretion to determine what the effective date should be shortened to, we also emphasize that industry has been aware of and alerted to the need to prepare their generating units for cold weather since at least 2011. NERC should consider the amount of time that industry has already had to implement freeze protection measures when determining the appropriate implementation period…
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> Further, we find that a phased compliance within the implementation time for Reliability Standard EOP-012-1 Requirement R2 will also reduce reliability risks. To address these concerns, we direct NERC to modify the EOP-012-1 implementation plan for Requirement R2 to require a staggered implementation for existing unit(s) in a generator owner's fleet with an effective date of less than 60 months from regulatory approval.

[108] *Id.* at P 37.

implementation plan as follows. Under the proposed implementation plan for Reliability Standard EOP-012-2, Reliability Standard EOP-012-2 would become effective on: (1) the later of October 1, 2024 (effective date of EOP-012-1); or (2) the first day of the first calendar quarter that is three (3) months following regulatory approval. NERC has requested expedited action in this proceeding to allow Reliability Standard EOP-012-1 to be superseded by proposed Reliability Standard EOP-012-2 prior to the first version ever becoming effective; however, should this request not be granted, some allowance is made to provide entities with reasonable notice of their revised obligations under Reliability Standard EOP-012-2.[109] Nearly all requirements would then become enforceable on the effective date, with the exception of Requirement R3 which would become mandatory and enforceable 12 months following the effective date.

Assuming an October 1, 2024 effective date for Reliability Standard EOP-012-2, the proposed implementation plan would apply to Generator Owners owning existing BES generating unit(s) subject to proposed Reliability Standard EOP-012-2 Requirement R3 as follows. By October 1, 2025, Generator Owners must either implement freeze protection measures to provide capability to operate at the Extreme Cold Weather Temperature or develop a Corrective Action Plan. NERC expects that corrective actions under such Corrective Action Plans would be implemented by no later than October 1, 2027 (modifications to existing freeze protection measures or equipment), or by no later than October 1, 2029 (implementation of new freeze protection measures or equipment), unless a Generator Cold Weather Constraint for one or more of the corrective actions is declared. This timeframe represents a significant improvement from the proposed implementation plan for Reliability Standard EOP-012-1, under which entities would

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[109] While NERC has previously proposed the retirement of currently effective Reliability Standard EOP-011-2 in connection with the approved successor versions of that standard (EOP-011-3 and EOP-011-4), NERC reiterates that request here, and respectfully requests the Commission coordinate the effective date of the retirement of Reliability Standard EOP-011-2 and the effective date of the EOP-012 standard.

have had until April 1, 2028 (42 months from the effective date) to implement freeze protection measures or develop a Corrective Action Plan for their existing BES generating units, with no deadline to implement any of the identified corrective actions.

In developing the proposed implementation plan, the standard drafting team considered the Commission's directive to stagger implementation across a fleet. However, in considering how to best address the underlying reliability concern (i.e., address reliability risks more quickly), the standard drafting team determined to pursue a much shorter period for full implementation of proposed Reliability Standard EOP-012-2, combined with aggressive timeframes for implementing Corrective Action Plan measures under proposed Requirement R7. The standard drafting team determined such an approach would be preferable to a longer EOP-012 implementation plan with staggered implementation percentages across subsequent years (e.g., 30% by Year 1, 60% by Year 3, 100% by Year 5). The proposed implementation plan provides an equally effective and efficient alternative to address the reliability considerations underlying the Commission's directives for two main reasons. First, by requiring Generator Owners to assess their entire fleets within 12 months, NERC and the industry would identify more quickly the scope of existing BES generating units that are not capable of operating at their Extreme Cold Weather Temperatures and the extent to which identified issues may be addressed in whole or in part by corrective actions. Second, by providing Generator Owners with maximum flexibility to implement an aggressive implementation timetable, NERC would focus industry's attention on bringing fleets into compliance as quickly as reasonably possible. Any inefficiencies that would result where the issues to addressed across a fleet do not lend themselves readily to percentage-based completion measures would be avoided.

In developing this approach, the standard drafting team considered industry concerns that requiring further staggering of an aggressive timeframe may complicate efforts to complete work efficiently and in a timely manner.[110] The standard drafting team noted that some natural staggering would likely occur as entities seek to implement measures across a fleet, but determined that leaving entities with flexibility in how they meet the timetables for implementing corrective action measures would be appropriate in the interest of advancing cold weather reliability more quickly and more efficiently.

For these reasons, NERC's proposed implementation timeline for proposed Reliability Standard EOP-012-2 balances the urgency in the need to implement the standards against the time allowed for those who must comply to develop necessary procedures and other relevant capabilities,[111] and is consistent with the reliability considerations underlying the Commission's directives in the February 2023 Order.

While NERC maintains that its proposed implementation period is reasonable in light of the above considerations, NERC continues to strongly encourage entities to prioritize implementation of proposed Reliability Standard EOP-012-2 and to comply with it, in whole or in part, as soon as circumstances allow. Based on the results of NERC's recent Level 3 Alert, NERC recognizes that many Generator Owners have already taken steps to calculate the Extreme Cold Weather Temperatures for their fleets and address the causes of freezing issues at their generating units. Continued vigilance and implementing corrective actions as soon as possible will help

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[110] *See* Exhibit C (Technical Rationale) at 17. *See also* Exhibit F (Record of Development) at item 50 (January 10, 2024 Consideration of Comments) (stakeholder responses to Question 3 indicating multiple concerns with an express requirement to stagger implementation, including that it may impede more efficient implementation across a fleet).

[111] *See* Order No. 672, *supra* note 99.

advance the reliability of the Bulk-Power System in the winter seasons that elapse before full implementation of proposed Reliability Standard EOP-012-2 is completed.

VII. NEXT STEPS

NERC is planning a comprehensive cold weather strategy for the upcoming winter seasons to monitor the implementation of the EOP-012 Reliability Standard. In the February 2023 Order, the Commission directed NERC to develop a plan, to be submitted by February 16, 2024, to collect data on the winterization of generating units and to submit an annual informational filing on the analysis of the data starting on October 1, 2025. Specifically, the Commission directed NERC to collect data and submit analysis that will allow the Commission to understand the efficacy of, and monitor the ongoing risk posed by: (1) technical, commercial, or operational constraint provisions in EOP-012-1, Requirements R1, R6, and R7; and (2) actual performance of freeze protection measures during future extreme cold weather events.[112] NERC submitted this plan in Docket No. RD23-1. Additionally, NERC and the Regional Entities are preparing a strategy for performing robust compliance monitoring and enforcement of the currently effective and approved generator cold weather Reliability Standards, consistent with Recommendation 1(b) of the Winter Storm Elliott report.[113] To the extent NERC's monitoring and analysis indicate opportunities to improve or enhance any of the cold weather Reliability Standards to better achieve their reliability goals, NERC will promptly initiate the standards development process to make the needed changes.

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[112] February 2023 Order at P 94.

[113] Winter Storm Elliott Report, *supra* note 9, at 132:

> Recommendation 1(b): Findings from the Report support the need for robust monitoring by NERC and the Regional Entities of compliance with the currently-effective and approved generator cold weather Reliability Standards, to determine if reliability gaps exist. NERC should identify the generating units that are at the highest risk during extreme cold weather and work with the Regional Entities (and Balancing Authorities, if applicable) to perform cold weather verifications of those generating units until all of the extreme cold weather Standards proposed by the 2021 Report are approved and effective. (Verify highest risk units by Q4, 2023; implement by Q3, 2024).

While proposed Reliability Standard EOP-012-2 marks the end of NERC's Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination, other high priority standards projects are underway to address other aspects of cold weather reliability. Project 2023-07 Transmission System Planning Performance Requirements for Extreme Weather will develop one or more Reliability Standards to address transmission system planning for extreme cold and extreme heat conditions consistent with the Commission's directives in Order No. 896.[114] Project 2022-03 Energy Assurance with Energy Constrained Resources will develop new or modified Reliability Standards to require entities to perform energy reliability assessments to evaluate energy assurance across the operations planning, near-term transmission planning, and long-term transmission planning or equivalent time horizons by analyzing the analyzing the expected resource mix availability and the expected availability of fuel during the study period.

In addition to the above, NERC and the Regional Entities will continue their longstanding efforts to support entities in their cold weather preparedness through workshops and other outreach opportunities. NERC, Regional Entity, and Commission staff will also undertake an effort to review system performance during Arctic cold conditions that traversed North America in January 2024 for insights and lessons learned.[115]

VIII. REQUEST FOR EXPEDITED ACTION

NERC respectfully requests that the Commission approve proposed Reliability Standard EOP-012-2 and the associated elements and implementation plan in an expedited manner. In the February 2023 Order, the Commission directed multiple clarifications and improvements to

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[114] *Transmission System Planning Performance Requirements for Extreme Weather*, Order No. 896, 183 FERC ¶ 61,191 (2023).

[115] *FERC, NERC To Review Bulk Power System Performance During Recent Winter Storms,* https://www.nerc.com/news/Pages/FERC,-NERC-to-Review-Bulk-Power-System-Performance-During-Recent-Winter-Storms-.aspx.

Reliability Standard EOP-012-1. To avoid compliance uncertainty and help ensure that the EOP-012 standard is implemented in an orderly fashion, and in light of the severe risks to reliability posed by the failure to prepare for extreme cold weather, NERC asks that the Commission approve Reliability Standard EOP-012-2 so that it may supersede Reliability Standard EOP-012-1 prior to its October 1, 2024 effective date.

IX. CONCLUSION

For the reasons set forth above, NERC respectfully requests that the Commission approve:

- Proposed Reliability Standard EOP-012-2 and the associated elements, as shown in **Exhibit A;**
- the retirement of Reliability Standard EOP-012-1; and
- The implementation plan included in **Exhibit B**.

NERC respectfully requests that the Commission consider expedited action in ruling on these proposals.

Respectfully submitted,

/s/ Lauren A. Perotti

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Counsel for the North American Electric Reliability Corporation

February 16, 2024

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Exhibit A

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Proposed Reliability Standard EOP-012-2
Clean

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the final draft of the proposed standard for a formal 5-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24
5-day final ballot	2/5/24 – 2/9/24

Anticipated Actions	Date
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component – Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event – One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. Functional Entities:

   4.1.1. Generator Owner

   4.1.2. Generator Operator

   4.2. Facilities:

   4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following Bulk Electric System (BES) resources:

   4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

   4.2.1.2. A Blackstart Resource, identified in the BES definition, inclusion I3.

5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or
- Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature under Requirement R1 Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]

4.2. The generating unit cold weather data, as determined in Requirement R1.2;

4.3. Documentation identifying Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at

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[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at generating units owned by the Generator Owner; and

6.3. An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the Corrective Action Plan.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.2. Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

7.3. Update the Corrective Action Plan action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each Corrective Action Plan and the completion of actions for each Corrective Action Plan including revision history of each Corrective Action Plan and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed the review and updated operating limitations as needed. Acceptable evidence may include, but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of the review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: “Compliance Enforcement Authority” (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.

- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 20% of its applicable units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for

	5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.
R4.	The Generator Owner implemented a cold weather preparedness plan(s) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or

	• 5% or less of its total applicable personnel.	• more than 5%, but less than or equal to 10% of its total applicable personnel.	• more than 10%, but less than or equal to 15% of its total applicable personnel.	• more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a Corrective Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Proposed Reliability Standard EOP-012-2
Redline to Last Approved

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the final draft of the proposed standard for a formal 5-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24
5-day final ballot	2/5/24 – 2/9/24

Anticipated Actions	Date
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component ~~–~~– Any generating unit component or system, or associated ~~fixed fuel supply component~~Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event ~~–~~– One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit ~~and exceeding~~, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-~~1~~2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. Functional Entities:

   4.1.1. Generator Owner

   4.1.2. Generator Operator

   4.2. Facilities:

   4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following Bulk Electric System (BES) resources:

   ~~**4.2.1.1** A Bulk Electric System generating unit that commits or is obligated to serve a Balancing Authority load pursuant to a tariff obligation, state requirement as defined by the relevant electric regulatory authority, or other contractual arrangement, rule, or regulation, for a continuous run of four hours or more at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius); or~~

   4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

   ~~**4.2.1.2**~~ **4.2.1.2.** A Blackstart Resource

   ~~**4.2.2** Exemptions:~~

   ~~Any Bulk Electric System generating unit included under Section 4.2.1 above that has a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) under Requirement R3 Part 3.1 and as part of~~, identified in the ~~required five year review in Requirement R4 Part 4.1 is exempt from further requirements in this standard~~BES definition, inclusion I3.

   ~~**4.2.2.1** A Bulk Electric System generating unit that is not committed or obligated to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) for any continuous run of more than four hours, but is called upon to operate for more than four hours in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius).~~

5. **Effective Date:** See Implementation Plan for Project 2021-07~~.~~ Phase 2.

B. Requirements and Measures

R1. ~~For~~At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- ~~)~~Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

~~R1.~~R2. Applicable to generating units with a commercial operation date ~~subsequent to [Effective Date of this requirement], the Generator Owner~~on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold

Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate ~~for~~at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours~~ at the Extreme Cold Weather Temperature for the unit(s), assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components;~~, or

  - ~~Explain in a declaration any technical, commercial, or~~ (ii) the maximum operational ~~constraints, as defined by the Generator Owner, that preclude the ability to implement appropriate~~duration for intermittent energy resources if less than twelve (12) continuous hours; or

- Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability ~~of operating for twelve (12) hours~~to operate at the ~~documented~~unit(s)' Extreme Cold Weather Temperature~~.~~

~~**M1.** Each Generator Owner will have dated evidence that demonstrates it has the capability to operate in accordance with Requirement R1. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Documentation of cold weather preparedness plan, documentation of design features, any declaration that contains dated documentation to support constraints identified by the Generator Owner.~~

  - ~~For each generating unit(s) in commercial operation prior to [Effective Date of this requirement], the Generator Owner shall ensure its generating unit(s) add new or modify existing freeze protection measures as needed to provide the capability to operate for~~ with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than ~~one (1) hour at the unit(s) Extreme Cold Weather Temperature. Generating unit(s) that are not capable of operating for one (1) hour at its Extreme Cold Weather Temperature shall develop a Corrective Action Plan (CAP) for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3. [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]~~twelve (12) continuous hours, or (ii) the

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a ~~CAP~~Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating ~~units~~unit(s) minimum temperature ~~per~~under Requirement R1 Part ~~3.5~~1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, ~~cold weather preparedness plan, and CAP~~and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for ~~their~~each unit~~(s) including the calculation date and source of temperature~~, as determined in Requirement R1;[3]

4.2. The generating unit cold weather data~~; ~~, as determined in Requirement R1.2;

4.3. Documentation identifying ~~the~~ Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which ~~may include~~includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures~~; and~~.

~~**3.1** Generating unit(s) cold weather data, to include:~~

~~**3.1.1** Generating unit(s) operating limitations in cold weather to include:~~

M4. ~~Capability and availability;~~

~~Fuel supply and inventory concerns;~~

~~Fuel switching capabilities; and~~

~~Environmental constraints.~~

~~Generating unit(s) minimum:~~

- ~~Design temperature;~~
- ~~Historical operating temperature; or~~
- ~~Current cold weather performance temperature determined by an engineering analysis.~~

Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement ~~R3.~~R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

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[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

~~**R3.** Once every five calendar years, each Generator Owner shall for each generating unit: *[Violation Risk Factor: Low] [Time Horizon: Operations Planning, Real-Time Operations]*~~

~~**4.1** Calculate the Extreme Cold Weather Temperature, and update the cold weather preparedness plan if this temperature is now lower than the previous lowest calculation;~~

~~**4.2** Review its documented generating unit(s) minimum temperature contained within its cold weather preparedness plan(s), pursuant to Part 3.5.2; and~~

~~**4.3** Review whether its generating units have the freeze protection measures required to operate at the Extreme Cold Weather Temperature pursuant to R1 or R2 as applicable, and if not develop a CAP for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3.~~

~~**M2.** Each Generator Owner will have dated, documented evidence that it reviewed temperature data and updated its cold weather preparedness plan(s) in accordance with Requirement R4.~~

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement ~~R3~~R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner ~~that owns a~~ shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall ~~develop a CAP,~~be developed within 150 days or by July 1, whichever is earlier,

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

~~that contains~~and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at ~~other~~ generating units owned by the Generator Owner; and

6.3. An identification of ~~any temporary~~ operating limitations or impacts to the cold weather preparedness plan~~,~~ that would apply until execution of the corrective action(s) identified in the ~~CAP~~Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a ~~CAP~~Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): ~~CAP~~Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the ~~CAP~~Corrective Action Plan.

R7. Each Generator Owner~~-~~, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.2. Implement ~~each CAP developed pursuant to Requirements R2, R4, or R6, or explain~~the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

7.3. Update the Corrective Action Plan action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration~~ why corrective actions are not being implemented due to any technical, commercial, or operational constraints as defined by~~, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

~~**7.2** Update each CAP if actions or timetables change, until completed.~~

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each ~~CAP~~Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement ~~R7~~R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each ~~CAP~~Corrective Action Plan and the completion of actions for each ~~CAP~~Corrective Action Plan including revision history of each ~~CAP~~Corrective Action Plan and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed the review and updated operating limitations as needed. Acceptable evidence may include, but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of the review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall ~~keep~~retain data or evidence to ~~show compliance for three years~~support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1~~, R3, and R5~~ and Measure M1~~, M3, and M5~~.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for ~~Requirement~~Requirements R2 and ~~Measure~~R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4. ~~The Generator Owner shall retain any Corrective Action Plans under Requirement R4 Part 4.3 for three years or until the Corrective Action Plan is complete, whichever timeframe is greater.~~
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.

- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 20% of its applicable units.
~~R1~~R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for 5% or less of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability~~Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 5%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 10%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 20% of its applicable units.

		less than or equal to 10% of its applicable units.	less than or equal to 20% of its applicable units.	
~~R2.~~R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 20% of its applicable units.
~~R3~~R4.	The Generator Owner implemented a cold weather preparedness plan(s~~),~~) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement ~~R3~~R4.	The Generator Owner had and maintained a cold weather preparedness plan(s~~),~~) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement ~~R3~~R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement ~~R3~~R4.
~~R4.~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner failed to complete one of the applicable requirement parts in~~	~~The Generator Owner failed to complete two or more of the applicable requirement parts~~

	~~but was late by 30 calendar days or less.~~	~~but was late by greater than 30 calendar days, but less than or equal to 60 calendar days.~~	~~Requirement R4 Parts 4.1 through 4.3;~~ ~~OR~~ ~~The Generator Owner completed the actions required in Requirement R4, but was late by greater than 60 calendar days.~~	~~in Requirement R4 Parts 4.1 through 4.3.~~
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a ~~CAP~~Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a ~~CAP~~Corrective

				Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a ~~CAP or explained in a declaration why corrective actions are not being implemented~~Corrective Action Plan, but failed to update the ~~CAP~~Corrective Action Plan when ~~actions or timetables~~corrective action(s) changed~~,~~ in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a ~~CAP~~Corrective Action Plan or ~~explain~~failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	~~TBD~~October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Exhibit B

Implementation Plan

Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2
Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report which called for development of new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012-1 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-1.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements, and making other enhancements directed by FERC in the Phase 1 Approval Order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2/EOP-012-1, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with the Phase 1 Approval Order, and proposed Requirement R8 requires Generator Owners to review declarations at least every five years, or as needed, when a change of status occurs and ensures operating limitations caused by the constraints are clearly identified. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter "Phase 1 Approval Order"), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1 but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

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Exhibit C

Technical Rationale

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Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

February 2024

RELIABILITY | RESILIENCE | SECURITY

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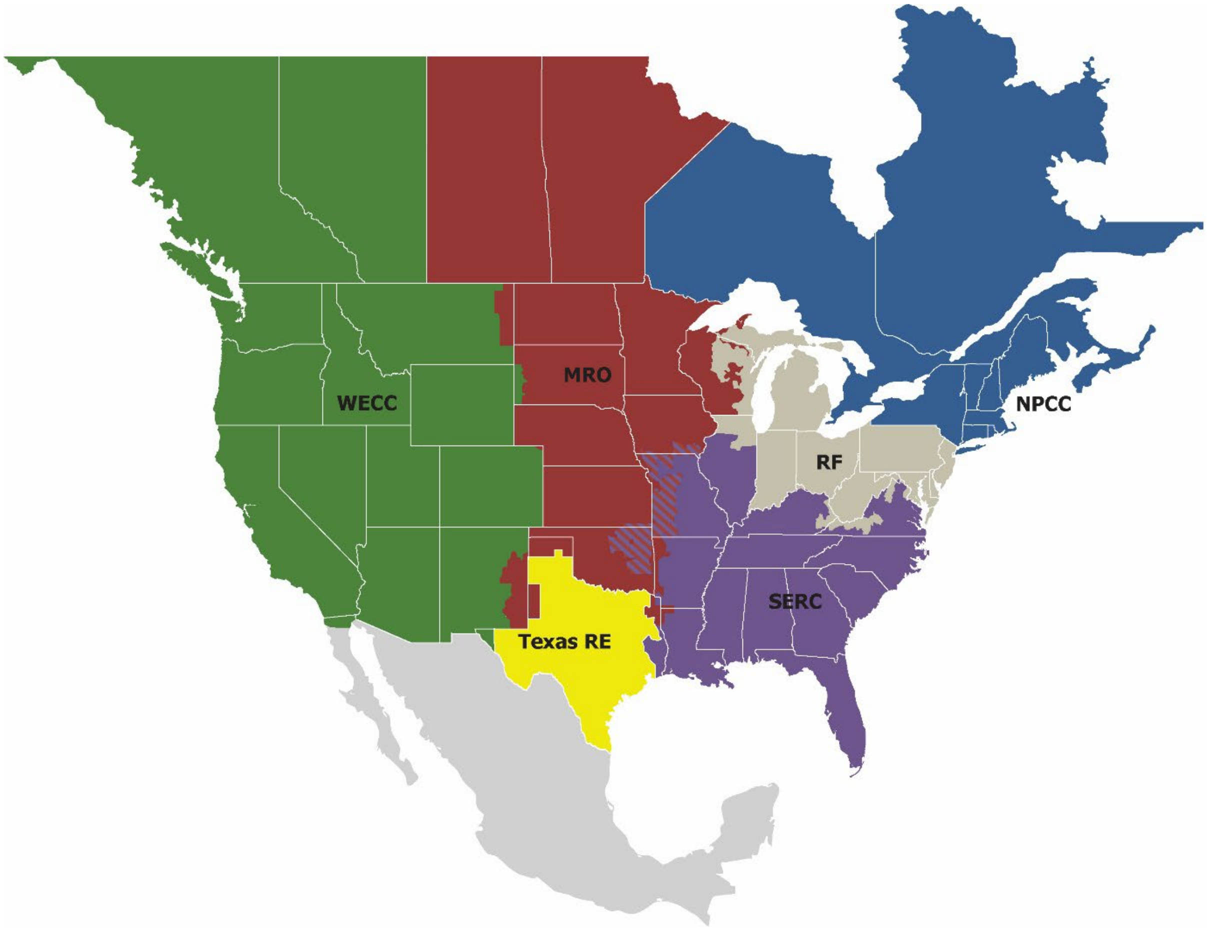
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of NERC and the six Regional Entities, is a highly reliable, resilient, and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entities as shown on the map and in the corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources could include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. GOs may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature, but upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT, such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility. Please reference the Calculating Extreme Cold Weather Temperature document drafted by the SDT for more information on how to calculate the ECWT.[6]

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

[6] Report (nerc.com)

Generator Cold Weather Critical Component

Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing and are critical to the operation of generating units. GOs should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components. The SDT also felt it is appropriate to specifically exclude components that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner would not constitute a freezing condition in the context of this Standard, and therefore, these lines would not be considered a Generator Cold Weather Critical Component.

The SDT's intent with the use of the phrase "permanent building" is to refer to a structure that is in place year round, shall accommodate personnel entry, and has a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit for the purpose of protecting components from freezing (e.g. heated container that protects inverter-based resources or battery energy systems).

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement, but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

<u>Key Recommendation 1d:</u> To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective

action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a Corrective Action Plan (CAP) for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, or freezing rain) on equipment. The SDT felt that it was important to clearly call out freezing precipitation as these events were included in the outages and derates that identified as freezing in the Joint Inquiry Report. Furthermore, Key Recommendation 1c of the report requires GOs to account for the effect of precipitation. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. Also excluded are proactive operational actions to limit the potential of forced outages or derates. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs). From the GADS data reporting instructions, the startup period for each unit is determined by the operating company. It is unique for each unit and depends on the condition of the unit at the time of startup (cold, warm, or hot). A typical unit startup occurs in three phases: warm up, synchronization, and ramp up. NERC defines a startup period to begin with the command to start and end when the unit is synchronized. A Startup Failure begins when a problem preventing the unit from synchronizing occurs. The Startup failure ends when the unit is synchronized, another Startup Failure occurs, or the unit enters another permissible state.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types

- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint

Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- *Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;*
- *Could not have been expected to accomplish the desired result; or*
- *Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.*

The SDT reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. The SDT relied upon the industry's long practice of using "good utility practice" as a basis for implementing new practices, methods, or technologies and as such developed a definition that largely built upon this language and approach. The SDT also ensured that constraint language would be fully captured within the standard itself and was customized to the freeze protection measures that will be implemented as part of this standard.

The following non-comprehensive list contains examples that may, depending on the circumstances, constitute a Generator Cold Weather Constraint(s):

- Warranties that would be voided by application of a freeze protection measure
- Accelerated retirement of an existing generating unit
- Cancellation of new generating unit(s)
- Reduction in summer capability
- Introduces an increased personnel or safety risk
- Introduces a risk of noncompliance with environmental regulations
- Compromised ability to provide ancillary services
- Technology not utilized by a significant portion of the electric utility industry

Ultimately, it will be the GO’s responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented. A declaration that no further corrective actions will be taken is expected to be used sparingly.

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard. Furthermore, the SDT wants to ensure that the standard language supports the adoption of new freeze protection practices, methods, or technologies while not immediately requiring a new freeze protection practice, method, or technology to be implemented industry-wide when a leading utility pilots a novel approach, as this would be a disincentive to utilities piloting new technologies. The SDT encourages additional studying of freeze protection measures to remove constraints as appropriate over time.

Facilities

4.1. *Facilities:*

- **4.1.1.** *Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:*
  - **4.1.1.1.** *A BES generating resource identified in the BES definition, Inclusion I2 and I4; or*
  - **4.1.1.2.** *A Blackstart Resource, identified in the BES definition, Inclusion I3.*

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

- ***1.1.*** *Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and*
  - ***1.1.1.*** *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.*
- ***1.2.*** *Identify generating unit(s) cold weather data, to include:*
  - ***1.2.1.*** *Generating unit(s) operating limitations in cold weather to include:*
    - ***1.2.1.1.*** *Capability and availability;*
    - ***1.2.1.2.*** *Fuel supply and inventory concerns;*
    - ***1.2.1.3.*** *Start-up issues;*
    - ***1.2.1.4.*** *Fuel switching capabilities; and*
    - ***1.2.1.5.*** *Environmental constraints.*
  - ***1.2.2.*** *Generating unit(s) minimum:*
    - *Design temperature and if available, the concurrent wind speed and precipitation;*
    - *Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or*
    - *Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003-5 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and

precipitation. Consideration of wind and precipitation, along with the minimum temperature, provides a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual future cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[7] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or*
- *Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report[8] suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, 2027). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

GOs with generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then must implement the CAP according to R7. In addition, it is recognized that Generator Cold Weather Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.4, the option for the GO to make a declaration supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter in

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[7] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[8] sw-task-force-cover-new2.psd (nerc.com)

most regions of the US and Canada and typically include the hours with the coldest experienced temperatures. The SDT is of the opinion that tying the requirement to the 12-hour period would provide a reasonable level of reliability during a cold weather event. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather conditions.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),*[9] *shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or*
- *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.*

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the timetable requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables are to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

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[9] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

4.1 *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*

4.2 *The generating unit cold weather data, as determined in Part 1.2;*

4.3 *Documentation identifying Generator Cold Weather Critical Components;*

4.4 *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*

4.5 *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2 and is intended to be used and reviewed regularly by the GO. R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012-2, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003-5 and IRO-010-4. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The NERC *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[10], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[10] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

R5. *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an "annual" basis. The Joint Inquiry Report explains "Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area."[11] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word "annual" to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The intent of the SDT is that training be provided to operational personnel who are responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. The operational personnel may include employees of the Registered Entity as well as any dedicated on-site full-time contractors or equipment OEM personnel responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. Vendors who perform inspection, maintenance, or installation of freeze protection measures prior to the winter season do not need to receive the training on the cold weather preparedness plan.

The SDT anticipates that training for personnel may include instructions on actions taken to prepare the generating unit(s) for cold weather operations prior to the cold weather season as well as on actions taken when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, application of portable heaters, review of special inspections or rounds implemented during severe weather, fuel switching procedures, and maintenance of freeze protection measures, etc.

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[11] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[12] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*

6.2. *A review of applicability to similar equipment at generating units owned by the Generator Owner; and*

6.3. *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.*

Key Recommendation 1d: *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.*

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads "A list of actions and an associated timetable for implementation to remedy a specific problem." As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

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[12] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit, but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of “following an outage or reserve shutdown”, since the definition of reserve shutdown is different in GADS than it is in some of the RTO’s.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site’s ECWT. By using the site’s ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. *Include a timetable for implementing the selected corrective action(s) that shall:*

7.1.1. *List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;*

7.1.2. *List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;*

7.1.3. *List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;*

7.2. *Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;*

7.3. *Update the Corrective Action Plan action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and*

7.4. *Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. At the same time, the SDT recognizes that the following limitations make the 24 and 48 calendar months maximum timelines reasonable: scoping applicability to similar units, freeze protection engineering and design, project development, annual budgeting process, material supply lead times, outage scheduling, skilled labor availability, and startup/commissioning.

Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future. The SDT added part 7.1.3. for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues. In establishing these timeframes, the SDT considered the FERC directives, and that NERC include a timeframe for completion for CAPs, shorten the implementation plans, and that NERC stagger Implementation Plans to have more generation compliant faster. The SDT considered a staggered timeframe both in the standard and Implementation Plan but determined that more aggressive completion time frames, combined with a shorter implementation plan, would serve the reliability goal to have generating units operating at the ECWT with less administrative burden that could be associated with proving compliance with a staggered implementation plan fleet wide. There is no specific staggering requirement within the 24- or 48-month completing time frames because of industry concern about additional complications of completing work efficiently. There will be some natural staggering due to unit outages and personnel availability as an example.

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. GOs that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

If one or more actions within a CAP fall under a constraint declaration, it is the intent of the SDT that only those affected actions would not be implemented as part of the CAP. The remaining actions should be implemented.

Requirement R8

R8. *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

- **8.1** *Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and*
- **8.2** *Update the operating limitations associated with capability and availability under Requirement R1 Part 1.2 if applicable.*

In the FERC order, the Commission expressed concern that a GO may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT.[1] An additional concern was that the constraint declarations may be used by a functional entity as an opt-out of compliance with requirements set forth in the standards or in a corrective action plan.[2] To mitigate the concern, the Commission directed NERC to work with Commission staff and submit a data collection and assessment plan that contains information related to GO constraint declarations and explanations thereof.[3] The SDT expects that ERO compliance staff will be the entity responsible for reviewing declared constraints and assessing compliance with the constraint definition criteria in accordance with established processes.

The SDT developed R8 to require the GO to perform a review and update any constraint declarations as needed. The SDT believes that constraints will be the exception. When GO's experience a condition such that they need to make a constraint declaration, the SDT believes the limiting factor causing the constraints will not change quickly, and as such a 5-year review is the appropriate time. While the SDT implemented a 5-year maximum time frame to review, it is the SDT's intent that the GO's will be cognizant of their Cold Weather Constraints and will proactively remove these constraints when and where warranted. For instance, if a unit is slated for retirement and this status changes, it is the expectation of the SDT that the GO will review constraints based upon this change in condition and will no longer take this constraint for future CAPs that may require the implementation of freeze protection measures on this unit given that it is no longer slated for retirement.

Updated constraint declarations would also require an update to the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003-5 and IRO-010-4.

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[1] FERC Order, 182 FERC ¶ 61,094 at P 64.

[2] Id. At P 66.

[3] See id at PP 11, 68, 94-95.

Exhibit D
Order No. 672 Criteria

EXHIBIT D

Order No. 672 Criteria

In Order No. 672,[1] the Commission identified a number of criteria it will use to analyze Reliability Standards proposed for approval to ensure they are just, reasonable, not unduly discriminatory or preferential, and in the public interest. The discussion below identifies these factors and explains how proposed Reliability Standard EOP-012-2 has met or exceeded the criteria.

1. Proposed Reliability Standards must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve that goal.[2]

Proposed Reliability Standard EOP-012-2 would advance the reliability of the Bulk-Power System ("BPS") through clarified and enhanced requirements for generator cold weather preparedness. Proposed Reliability Standard EOP-012-2 improves upon the approved, but not yet effective generator cold weather preparation Reliability Standard EOP-012-1 in several important ways. Consistent with the Commission's directives in the February 2023 Order,[3] proposed

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[1] *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, 114 FERC ¶ 61,104, *order on reh'g*, Order No. 672-A, 114 FERC ¶ 61,328 (2006) [hereinafter Order No. 672].

[2] *See* Order No. 672, *supra* note 1, at P 321 ("The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of Bulk-Power System facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to Cybersecurity protection.").

See Order No. 672, *supra* note 1, at P 324 ("The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons.").

[3] *N. Am. Elec. Reliability Corp.*, 182 ¶ 61,094 (2023) (approving Reliability Standards EOP-011-3 and EOP-012-1 and directing further revisions) [hereinafter February 2023 Order], *reh'g. denied,* 183 FERC ¶ 62,034, *order addressing arguments raised on reh'g,* 183 FERC ¶ 61,222.

Reliability Standard EOP-012-2 would clarify the applicability of standard's requirements for generator cold weather preparedness, further define the circumstances under which a Generator Owner may declare that constraints preclude them from implementing one or more corrective actions to address freezing issues, and shorten the implementation timeline so cold weather reliability risks would be addressed more quickly. Proposed Reliability Standard EOP-012-2 also reflects additional improvements that would address the recommendations of the FERC, NERC, and Regional Entity Staff Joint Inquiry into the causes of the February 2021 cold weather event affecting Texas and the south central United States by requiring consideration of freezing participation in various aspects of the standard.[4]

The proposed Reliability Standard is designed to achieve a specific reliability goal (i.e., enhanced requirements for generator cold weather preparedness), and contains a technically sound means to achieve that goal through requirements addressing the implementation of freeze protection measures to provide capability to operate at a statistically extreme cold weather temperature, and requirements to address any freezing-related issues that later occur.

2. Proposed Reliability Standards must be applicable only to users, owners, and operators of the bulk power system, and must be clear and unambiguous as to what is required and who is required to comply.[5]

The proposed Reliability Standard is clear and unambiguous as to what is required and who is required to comply, in accordance with Order No. 672. Proposed Reliability Standard EOP-012-2 improves upon Reliability Standard EOP-012-1 through an optimized organizational structure

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[4] FERC, NERC, Regional Entity Staff Report: *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021), https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and [hereinafter February 2021 Event Joint Inquiry Report].

[5] *See* Order No. 672, *supra* note 1, at P 322 ("The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others.").

See Order No. 672, *supra* note 1, at P 325 ("The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability.").

and through revisions intended to improve the clarity and effectiveness of the standard. Consistent with the Commission's directives in the February 2023 Order, proposed Reliability Standard EOP-012-2 clarifies the standard's applicability to Generator Owners and Generator Operators for all BES generating units. Where the standard drafting team determined to exempt BES generating units that do not generally operate in freezing conditions from requirements to implement freeze protection measures, proposed Reliability Standard EOP-012-2 provides clear language to that effect in the specific requirements.

The proposed Reliability Standards clearly articulate the actions that applicable entities must take to comply with the standards. Consistent with the Commission's directives in the February 2023 Order, proposed Reliability Standard EOP-012-2 would also further define the circumstances under which a Generator Owner may declare that constraints preclude them from implementing one or more corrective actions to address freezing issues.

3. A proposed Reliability Standard must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation.[6]

The Violation Risk Factors ("VRFs") and Violation Severity Levels ("VSLs") for the proposed Reliability Standard comport with NERC and Commission guidelines related to their assignment, as discussed further in Exhibit E. The assignment of the severity level for each VSL is consistent with the corresponding requirement, and the VSLs should ensure uniformity and consistency in the determination of penalties. The VSLs do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. For these reasons, the proposed Reliability Standard includes clear and understandable consequences in accordance with Order No. 672.

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[6] *See* Order No. 672, *supra* note 1, at P 326 ("The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply.").

4. A proposed Reliability Standard must identify clear and objective criteria or measures for compliance, so that it can be enforced in a consistent and non-preferential manner.[7]

The proposed Reliability Standard contains measures that support each requirement by clearly identifying what is required and how the requirement will be enforced. These measures help provide clarity regarding how the requirements would be enforced and help ensure that the requirements would be enforced in a clear, consistent, and non-preferential manner and without prejudice to any party.

5. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently, but do not necessarily have to reflect "best practices" without regard to implementation cost or historical regional infrastructure design.[8]

The proposed Reliability Standard achieves its reliability goals effectively and efficiently in accordance with Order No. 672. Proposed Reliability Standard EOP-012-2 improves upon Reliability Standard EOP-012-1 through an optimized organizational structure and through revisions intended to improve the clarity and effectiveness of the standard. Consistent with the Commission's directives in the February 2023 Order, proposed Reliability Standard EOP-012-2 would clarify the applicability of standard's requirements for generator cold weather preparedness, further define the circumstances under which a Generator Owner may declare that constraints preclude them from implementing one or more corrective actions to address freezing issues, and shorten the implementation timeline so cold weather reliability risks would be addressed more quickly. Proposed Reliability Standard EOP-012-2 also reflects additional improvements that would address the remaining recommendations of the February 2021 Event Joint Inquiry Report.

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[7] *See* Order No. 672, *supra* note 1, at P 327 ("There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner.").

[8] *See* Order No. 672, *supra* note 1, at P 328 ("The proposed Reliability Standard does not necessarily have to reflect the optimal method, or 'best practice,' for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently.").

These clarifications and improvements contribute to a clearer and stronger standard for generator cold weather preparedness that would help advance the reliability of the Bulk-Power System during future cold weather seasons. The proposed Reliability Standard accommodates regional differences in the temperature that constitutes "extreme cold," and it provides flexibility to entities on the measures they may take to ensure capability to operate at that temperature.

6. Proposed Reliability Standards cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect Bulk-Power System reliability. Proposed Reliability Standards can consider costs to implement for smaller entities, but not at consequences of less than excellence in operating system reliability.[9]

The proposed Reliability Standard does not reflect a "lowest common denominator" approach. The proposed Reliability Standard would further advance the reliable operation of the Bulk-Power System in cold weather conditions by requiring all owners or operators of BES generating units to identify cold weather data, calculate an Extreme Cold Weather Temperature for their generating unit(s), and develop and provide training annually on a comprehensive cold weather preparedness plan for the unit(s). For BES generating units that operate in freezing conditions, proposed Reliability Standard EOP-012-2 has further requirements to help ensure that the generating unit has the appropriate freeze protection measures to operate reliably at the Extreme Cold Weather Temperature. The proposed Reliability Standard recognizes that, in limited instances, freeze protection measures to provide full capability may not be able to be implemented

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[9] *See* Order No. 672, *supra* note 1, at P 329 ("The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice—the so-called 'lowest common denominator'—if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability.").

See Order No. 672, *supra* note 1, at P 330 ("A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a 'lowest common denominator' Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it.").

at all or except at a prohibitive cost; in such cases, Generator Owners may consider whether a Generator Cold Weather Constraint would apply. In the interest of advancing operating system reliability, the criteria for what constitutes a Generator Cold Weather Constraint is limited, and Generator Owners declaring such a constraint must account for their limitations in the generating unit cold weather data provided to reliability entities and review these constraints periodically for continued applicability.

7. Proposed Reliability Standards must be designed to apply throughout North America to the maximum extent achievable with a single Reliability Standard while not favoring one geographic area or regional model. It should take into account regional variations in the organization and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard.[10]

The proposed Reliability Standard would apply consistently throughout North America and does not favor one geographic area or regional model. The proposed Reliability Standard would provide sufficient flexibility to accommodate regional/geographic variations, including climate, generation type, market issues, state rules, and other considerations.

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[10] *See* Order No. 672, *supra* note 1, at P 331 ("A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard.").

8. Proposed Reliability Standards should cause no undue negative effect on competition or restriction of the grid beyond any restriction necessary for reliability.[11]

The proposed Reliability Standard would have no undue negative effect on competition and would not unreasonably restrict the available transmission capacity or limit the use of the BPS in a preferential manner. The proposed standard would require the same performance by each of the applicable entities.

9. The implementation time for the proposed Reliability Standard is reasonable.[12]

The proposed implementation plan for the proposed Reliability Standard is just and reasonable and appropriately balances the urgency in the need to implement the standard against the reasonableness of the time allowed for those who must comply to develop necessary procedures or other relevant capability. The proposed implementation plan is discussed in detail in the main petition and is attached as **Exhibit B.**

10. The Reliability Standard was developed in an open and fair manner and in accordance with the Commission-approved Reliability Standard development process.[13]

The proposed Reliability Standard was developed in accordance with NERC's Commission-approved processes for developing and approving Reliability Standards. **Exhibit F**

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[11] *See* Order No. 672, *supra* note 1, at P 332 ("As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another.").

[12] *See* Order No. 672, *supra* note 1, at P 333 ("In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability.").

[13] *See* Order No. 672, *supra* note 1, at P 334 ("Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's

includes a summary of the Reliability Standard development proceedings, and details the processes followed to develop the proposed Reliability Standard. These processes included, among other things, comment periods, pre-ballot review periods, and balloting periods. Additionally, meetings of the standard drafting team were properly noticed and open to the public.

11. NERC must explain any balancing of vital public interests in the development of proposed Reliability Standards.[14]

NERC has identified no competing public interests regarding the request for approval of these proposed Reliability Standard. No comments were received that indicated that the proposed Reliability Standard conflicts with other vital public interests.

12. Proposed Reliability Standards must consider any other appropriate factors.[15]

No other negative factors relevant to whether the proposed Reliability Standard is just and reasonable were identified.

Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission.").

[14] *See* Order No. 672, *supra* note 1, at P 335 ("Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard.").

[15] *See* Order No. 672, *supra* note 1, at P 323 ("In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed.").

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Exhibit E

Analysis of Violation Risk Factors and Violation Severity Levels

Violation Risk Factor and Violation Severity Level Justifications

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

This document provides the standard drafting team's (SDT's) justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination. Each requirement is assigned a VRF and a VSL. These elements support the determination of an initial value range for the Base Penalty Amount regarding violations of requirements in FERC-approved Reliability Standards, as defined in the Electric Reliability Organization's (ERO) Sanctions Guidelines. The SDT applied the following NERC criteria and FERC Guidelines when developing the VRFs and VSLs for the requirements.

NERC Criteria for Violation Risk Factors

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

A requirement that, if violated, could directly affect the electrical state or the capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System. However, violation of a medium risk requirement is unlikely to lead to Bulk Electric System instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to Bulk Electric System instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System.

FERC Guidelines for Violation Risk Factors

Guideline (1) – Consistency with the Conclusions of the Final Blackout Report

FERC seeks to ensure that VRFs assigned to Requirements of Reliability Standards in these identified areas appropriately reflect their historical critical impact on the reliability of the Bulk-Power System. In the VSL Order, FERC listed critical areas (from the Final Blackout Report) where violations could severely affect the reliability of the Bulk-Power System:

- Emergency operations
- Vegetation management
- Operator personnel training
- Protection systems and their coordination
- Operating tools and backup facilities
- Reactive power and voltage control
- System modeling and data exchange
- Communication protocol and facilities
- Requirements to determine equipment ratings
- Synchronized data recorders
- Clearer criteria for operationally critical facilities
- Appropriate use of transmission loading relief.

Guideline (2) – Consistency within a Reliability Standard
FERC expects a rational connection between the sub-Requirement VRF assignments and the main Requirement VRF assignment.

Guideline (3) – Consistency among Reliability Standards
FERC expects the assignment of VRFs corresponding to Requirements that address similar reliability goals in different Reliability Standards would be treated comparably.

Guideline (4) – Consistency with NERC's Definition of the Violation Risk Factor Level
Guideline (4) was developed to evaluate whether the assignment of a particular VRF level conforms to NERC's definition of that risk level.

Guideline (5) – Treatment of Requirements that Co-mingle More Than One Obligation
Where a single Requirement co-mingles a higher risk reliability objective and a lesser risk reliability objective, the VRF assignment for such Requirements must not be watered down to reflect the lower risk level associated with the less important objective of the Reliability Standard.

NERC Criteria for Violation Severity Levels

VSLs define the degree to which compliance with a requirement was not achieved. Each requirement must have at least one VSL. While it is preferable to have four VSLs for each requirement, some requirements do not have multiple “degrees” of noncompliant performance and may have only one, two, or three VSLs.

VSLs should be based on NERC’s overarching criteria shown in the table below:

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

FERC Order of Violation Severity Levels

The FERC VSL guidelines are presented below, followed by an analysis of whether the VSLs proposed for each requirement in the standard meet the FERC Guidelines for assessing VSLs:

Guideline (1) – Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance

Compare the VSLs to any prior levels of non-compliance and avoid significant changes that may encourage a lower level of compliance than was required when levels of non-compliance were used.

Guideline (2) – Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties

A violation of a “binary” type requirement must be a “Severe” VSL.
Do not use ambiguous terms such as “minor” and “significant” to describe noncompliant performance.

Guideline (3) – Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement

VSLs should not expand on what is required in the requirement.

Guideline (4) – Violation Severity Level Assignment Should Be Based on a Single Violation, Not on a Cumulative Number of Violations

Unless otherwise stated in the requirement, each instance of non-compliance with a requirement is a separate violation. Section 4 of the Sanctions Guidelines states that assessing penalties on a per violation per day basis is the "default" for penalty calculations.

EOP-012-2

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
NERC VRF Discussion	A VRF of Lower is appropriate due to the fact that calculating the Extreme Cold Weather Temperature and identifying generating unit cold weather data is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Lower VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Lower VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC	This VRF is in line with the definition of a Lower VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
Definitions of VRFs	
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R1			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R1	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R1	
Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R2

The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1).

VSL Justification for EOP-012-2, Requirement R2

The VSL had minor changes from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1) due to changes in the standard language and reorganization of requirements.

VSLs for EOP-012-2, Requirement R2			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of medium is appropriate due to the fact generating units that are not capable of operating at its Extreme Cold Weather Temperature could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSL Justification for EOP-012-2, Requirement R3

The VSL had minor changes due to changes in the standard language from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R2).

VSLs for EOP-012-2, Requirement R3			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not have freeze protection measure(s) meeting the criteria in	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 5%,	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 10%, but less than	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 20% of its applicable units.

Requirement R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R3	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent

VSL Justifications for EOP-012-2, Requirement R3	
Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R4
The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VSL Justification for EOP-012-2, Requirement R2
The VSL did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VRF Justification for EOP-012-2, Requirement R5
The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R5
The VSL did not change from the previous EOP-012-1 Reliability Standard.

VRF Justification for EOP-012-2, Requirement R6
The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R6
VSL had minor changes due to minor revisions in the standard language.

VRF Justification for EOP-012-2, Requirement R7
The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R7
VSL had changes due to revisions in the standard language.

VSLs for EOP-012-2, Requirement R7			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of Medium is appropriate due to the fact that not updating Generator Cold Weather Constraint declarations and updating operating limitations associated with capability and availability could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
Reliability Standard	
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R8			
Lower	**Moderate**	**High**	**Severe**
N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

VSL Justifications for EOP-012-2, Requirement R8	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.

VSL Justifications for EOP-012-2, Requirement R8	
Consequence of Lowering the Current Level of Compliance	
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

Exhibit F

Summary of Development History and Complete Record of Development

Summary of Development History

The following is a summary of the development record for proposed Reliability Standard EOP-012-2.

I. Overview of the Standard Drafting Team

When evaluating a proposed Reliability Standard, the Commission is expected to give "due weight" to the technical expertise of the ERO.[1] The technical expertise of the ERO is derived from the standard drafting team ("SDT") selected to lead each project in accordance with Section 4.3 of the NERC Standard Processes Manual.[2] For this project, the SDT consisted of industry experts, all with a diverse set of experiences. A roster of the Project 2021-07 SDT members is included in **Exhibit G**.

II. Standard Development History

A. Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination addresses reliability related findings from the 2021 FERC, NERC, and Regional Entity Joint Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States*.[3] Phase 1 of the project concluded in October 2022 with the development of proposed Reliability Standards EOP-011-3 and EOP-012-1. On February 16, 2023, FERC issued an order approving Reliability Standards EOP-011-3 and EOP-012-1 and directing modification of Reliability Standard EOP-012-1. Phase 2 of the project completed in October 2023 with the development of

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[1] Section 215(d)(2) of the Federal Power Act; 16 U.S.C. § 824(d)(2) (2018).

[2] The NERC *Standard Processes Manual* is available at https://www.nerc.com/AboutNERC/RulesOfProcedure/Appendix_3A_SPM_Clean_Mar2019.pdf.

[3] FERC, NERC, Regional Entity Staff Report: *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021), https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and [hereinafter February 2021 Event Joint Inquiry Report].

proposed Reliability Standards EOP-011-4 and TOP-002-5. Work to address the FERC directives from the February 2023 order proceeded as a "phase 3" of Project 2021-07.

B. Standard Authorization Request Development

On November 17, 2021, the Standards Committee authorized posting a Standards Authorization Request ("SAR") developed in response to the February 2021 Event Joint Inquiry Report for a 30-day formal comment period from November 22, 2021 through December 21, 2021 and authorized the solicitation of SDT members.[4] The Standards Committee accepted the SAR on February 25, 2022. All three phases of work under Project 2021-07 proceeded under the same SAR.

C. First Posting - Comment Period, Initial Ballot, and Non-binding Poll

On June 2, 2023, the Standards Committee authorized the initial posting of proposed Reliability Standard EOP-012-2 and the associated Implementation Plan and other associated documents for a 45-day formal comment period.[5] The initial posting took place from June 5, 2023 through July 20, 2023, with a parallel initial ballot and non-binding poll on the Violation Risk Factors ("VRFs") and Violation Severity Levels ("VSLs") held during the last 10 days of the comment period from July 11, 2023 through July 20, 2023.[6] The initial ballot for proposed Reliability Standard EOP-012-2 received 43.47 percent approval, reaching quorum at 90.7 percent of the ballot pool, and the initial ballot for the associated Implementation Plan received 50.96 percent approval with 90.91 percent quorum.[7] The non-binding poll for the associated VRFs and

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[4] *See* NERC Standards Committee November 17, 2021 Agenda Package, https://www.nerc.com/comm/SC/Agenda%20Highlights%20and%20Minutes/SC_Agenda_Package_November_17_2021.pdf.

[5] NERC, *Standards Committee Agenda Package June 2, 2023*, https://www.nerc.com/comm/SC/Agenda%20Highlights%20and%20Minutes/SCEC_Agenda_Package_June_2_2023.pdf.

[6] *See* Exhibit F, Complete Record of Development, at item 9.

[7] *Id.* at items 14, 15.

VSLs received 43.59 percent supportive opinions, reaching quorum at 89.05 percent of the ballot pool.[8] There were 79 sets of responses, including comments from approximately 177 different individuals and approximately 119 companies, representing all 10 industry segments.[9]

D. Standards Committee Authorizes Procedural Waiver

On August 23, 2023, the Standards Committee authorized a waiver of Sections 4.9 and 4.12 of the Standard Processes Manual to reduce the additional formal comment and ballot periods for Project 2021-07 from 45 days to as little as 25 days, with ballot conducted during the last 10 days of the comment period, and to reduce the final ballot from 10 days to five calendar days.[10]

E. Second Posting - Comment Period, Additional Ballot, and Non-binding Poll

The second draft of proposed Reliability Standard EOP-012-2,.the associated Implementation Plan, and other associated documents were posted for a 35-day formal comment period from October 27, 2023 through November 30, 2023, with a parallel additional ballot and non-binding poll held from November 21, 2023 through November 30, 2023.[11] The additional ballot for proposed Reliability Standard EOP-012-2 received 58.86 percent approval, reaching quorum at 89.3 percent of the ballot pool, and the additional ballot for the associated Implementation Plan received 68.44 percent approval with 89.49 percent quorum.[12] The non-binding poll for the associated VRFs and VSLs received 56.02 percent supportive opinions, reaching quorum at 86.83 percent of the ballot pool.[13] There were 71 sets of responses, including

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[8] *Id.* at item 16.

[9] *Id.* at item 10.

[10] *Id.* at items 17, 18.

[11] *Id.* at items 29, 32.

[12] *Id.* at items 34, 35.

[13] *Id.* at item 36.

comments from approximately 167 different individuals and approximately 113 companies, representing all 10 industry segments.[14]

F. Standards Committee Authorizes Additional Waiver

On December 13, 2023, the Standards Committee approved a second waiver under Sections 4.9 and 4.12 of the Standard Processes Manual to further shorten the usual periods for comment and ballot for Project 2021-07. Specifically, the Standards Committee approved shortening the additional formal comment and ballot period(s) from 45 days to as little as 10 days, with ballot and non-binding poll conducted concurrently during the last 5 days of the comment period.[15]

G. Third Posting – Comment Period, Additional Ballot, and Non-binding Poll

The third draft of proposed Reliability Standard EOP-012-2, the associated Implementation Plan, and other associated documents were posted for a 13-day formal comment period from January 10, 2024 through January 22, 2024, with a parallel additional ballot and non-binding poll held from January 16, 2024 through January 22, 2023.[16] The initial ballot for proposed Reliability Standard EOP-012-2 received 81.02 percent approval, reaching quorum at 87.71 percent of the ballot pool, and the initial ballot for the associated Implementation Plan received 88.62 percent approval with 87.21 percent quorum.[17] The non-binding poll for the associated VRFs and VSLs received 89.73 percent supportive opinions, reaching quorum at 85.16 percent of the ballot pool.[18] There were 63 sets of responses, including comments from approximately 175 different individuals and approximately 118 companies, representing all 10 industry segments.[19]

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[14] *Id.* at item 30.

[15] *Id.* at item 37.

[16] *Id.* at items 48, 51.

[17] *Id.* at items 53, 54.

[18] *Id.* at item 55.

[19] *Id.* at item 49.

H. Final Ballot

The final draft of proposed Reliability Standard EOP-012-2 was posted for a 5-day final ballot period from February 5, 2024 through February 9, 2024.[20] The final ballot for proposed Reliability Standard EOP-012-2 reached quorum at 89.04 percent of the ballot pool, receiving support from 82.01 percent of the voters.[21] The ballot for the Implementation Plan reached quorum at 88.55 percent of the ballot pool, receiving support from 89.85 percent of the voters.[22]

I. Board of Trustees Adoption

The NERC Board of Trustees adopted proposed Reliability Standard EOP-012-2 on February 15, 2024.[23]

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[20] *Id.* at item 65.

[21] *Id*. at item 66.

[22] *Id*. at item 67.

[23] NERC, *Board of Trustees Agenda Package Feb., 2024*, Agenda Item 8b. (Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination), https://www.nerc.com/gov/bot/Agenda%20highlights%20and%20Mintues%202013/Board%20Open%20Agenda%20Package%20-%20February%202024%20(002).pdf.

Complete Record of Development

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Related Files

Status

Final ballots for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Phase II** are open through **8 p.m. Eastern, Friday, February 9, 2024** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

Background

Extreme cold weather and precipitation affected the south central United States February 8-20, 2021. Many generating units experienced outages, derates, or failures to start, resulting in energy and transmission emergencies (referred to as “the Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 northeast blackout and the August 1996 west coast blackout.

Standard(s) Affected – BAL, EOP, IRO, TOP, or Other Standards as Identified in the SAR

Purpose/Industry Need

The primary purpose of this project is to address reliability related findings from the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 Cold Weather Grid Operations[1]. The project scope will address nine recommendations for new or enhanced NERC Reliability Standards proposed by the report.

The NERC Board of Trustees (Board) issued a resolution in November 2021 for the development of standards under this project be completed in accordance with the staged timelines recommended by the joint inquiry team, as follows:

- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2022/2023: development completed by September 30, 2022 for the Board's consideration in October 2022;
- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2023/2024: development completed by September 30, 2023 for the Board's consideration in October 2023.

Phase 1 of the project ran from February – September 2022 and addressed the 4 Key Recommendations identified in the SAR. These standards were presented and approved by the NERC Board in October 2022. Phase 2 of the project began in October 2022 and is addressing the remaining Key Recommendations.

On February 16, 2023, FERC issued an Order Approving Extreme Cold Weather Reliability Standards EOP-011-3 and EOP-012-1 and Directing Modification of Reliability Standard EOP-012-1, *N. Am. Elec. Reliability Corp.*, 182 FERC 61,094 (Feb. 16, 2023). In this order, FERC directed changes to be made to EOP-012-1.[2]

Subscribe to this project's observer mailing list

Select "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Observer List” in the Description Box.

[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] eLibrary | File List (ferc.gov)

Draft	Actions	Dates	Results	Consideration of Comments
Phase 2 - Final Ballot of EOP-012-2 **EOP-012-2** **(56)** Clean | **(57)** Redline to Last Posted I **(58)** Redline to Last Approved(EOP-012-1) **Implementation Plan** **(59)** Clean | **(60)** Redline **Supporting Materials** **(61)** Mapping Document **(62)** VRF/VSL Justifications	**Final Ballot** **(65)** Info Vote	02/05/24-02/09/24	**Ballot Results** **(66)** EOP-012-2 **(67)** Implementation Plan	

Technical Rationale **EOP-012-2** **(63)** Clean | (64) Redline				
Phase 2 - Draft 3 of EOP-012-2 **EOP-012-2** **(38)** Clean | **(39)** Redline to Last Posted I **(40)** Redline to Last Approved(EOP-012-1) **Implementation Plan** **(41)** Clean | **(42)** Redline **Supporting Materials** **(43)** Unofficial Comment Form (Word) **(44)** Mapping Document **(45)** VRF/VSL Justifications **Technical Rationale** **EOP-012-2** **(46)** Clean | **(47)** Redline	Additional Ballots and Non-binding Poll **(51)** Ballots Open Reminder **(52)**Info Vote	01/16/24-01/22/24	**Ballot Results** **(53)** EOP-012-2 **(54)** Implementation Plan **Non-Binding Poll Result** **(55)** EOP-012-2	**(50)**Consideration of Comments
	Comment Period **(48)** Info Submit Comments	01/10/24-01/22/24	**(49)** Comments Received	
(37) Waiver	Standards Committee accepted the waiver on December 13, 2023.			
Phase 2 - Draft 2 of EOP-012-2 **EOP-012-2***updated *Requirement R3 was updated to correct error in date to align with previous posting of EOP-012-2 **(19)** Clean | **(20)** Redline to Last Posted I **(21)** Redline to Last Approved(EOP-012-1)	Additional Ballots and Non-binding Poll **(32)**Ballots Open reminder **(33)** Info*updated Vote	11/21/23-11/30/23	**Ballot Results** **(34)** EOP-012-2 **(35)** Implementation Plan **Non-Binding Poll Result** **(36)** EOP-012-2	

Implementation Plan (22) Clean | (23) Redline **Supporting Materials** (24) Unofficial Comment Form (Word)*updated (25) Mapping Document (26) VRF/VSL Justifications **Technical Rationale** **EOP-012-2** (27) Clean | (28) Redline				(31) Consideration of Comments
	Comment Period (29) Info*updated Submit Comments	10/27/23-11/30/23	(30) Comments Received	

Waiver **(17)** Waiver I **(18)** Meeting Minutes	Standards Committee accepted the waiver on August 23, 2023.			
Phase 2 - Draft 1 of EOP-012-2 **EOP-012-2** **(1)** Clean | **(2)** Redline to Last Approved (EOP-012-1) **(3)** Implementation Plan **Supporting Materials**	Initial Ballots and Non-binding Polls **(12)** Ballots Open Reminder **(13)** Info Vote	07/11/23 - 07/20/23	**Ballot Results** **(14)** EOP-012-2 **(15)** Implementation Plan **Non-Binding Poll Result** **(16)** EOP-012-2	

(4) Unofficial Comment Form (Word) **(5)** Mapping Document (6) VRF/VSL Justifications (7) FAQ **Technical Rationale** **(8)** EOP-012-2				
	Join Ballot Pools	06/05/23 - 07/5/23		
	Comment Period **(9)** Info Submit Comments	06/05/23 - 07/20/23	**(10)** Comments Received	**(11)** Consideration of Comments

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the initial draft of the proposed standard for a formal 45-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal or informal comment period with ballot	6/5/23 – 7/20/23
XX-day formal or informal comment period with additional ballot	TBD

Anticipated Actions	Date
10-day final ballot	TBD
Board adoption	October 2023

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component - Any generating unit component or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.

Fixed Fuel Supply Component - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint(s) – A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas:

- Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.
- Commercial Constraint - A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they

would result in the generating unit not operating or not being put into service at the time of the evaluation.

- Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2, but is not being balloted at this time.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. Functional Entities:

      4.1.1. Generator Owner

      4.1.2. Generator Operator

   4.2. Facilities:

      4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:

         4.2.1.1. A BES generating resource identified in the BES definition, Inclusion I2 and I4; or

         4.2.1.2. A Blackstart Resource, identified in the BES definition, Inclusion I3.

5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within six months of the recalculation; and

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1 Generating unit(s) operating limitations in cold weather to include:

1.2.1.1 Capability and availability;

1.2.1.2 Fuel supply and inventory concerns;

1.2.1.3 Fuel switching capabilities; and

1.2.1.4 Environmental constraints.

1.2.2 Generating unit(s) minimum:

- Design temperature and if available, concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and engineering analysis, operating data or design information that support its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

2.1 Have freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate:

2.1.1 At the unit(s)' Extreme Cold Weather Temperature;

2.1.2 For (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; and

2.1.3 With a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components.

2.2 Each Generator Owner that does not have freeze protection measures as required by Requirement R2 Part 2.1 shall develop a Corrective Action Plan.

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with Requirement R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and CAP(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] and is not capable of operating at its Extreme Cold Weather Temperature shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

3.1 Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide such capability;

3.2 Update the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with Requirement R3, or it has developed a CAP for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and CAP(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

4.1 The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]

4.2 The generating unit cold weather data, as determined in Part 1.2;

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

4.3 Documentation identifying Generator Cold Weather Critical Components;

4.4 Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5 Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate inspections and maintenance has been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

6.1 A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2 A review of applicability to similar equipment at generating units owned by the Generator Owner;

6.3 An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan; and

6.4 An identification of updates to the list of Generator Cold Weather Critical Components or their freeze protection measures in the cold weather preparedness plan(s) required under Requirement R4.

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): CAP(s) and updated cold weather preparedness plan(s) where indicated as needed by the CAP.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1 Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1 Specify action(s) that address(es) existing equipment or freeze protection measures, if any, within 24 months of development of the Corrective Action Plan; and

7.1.2 Specify action(s) that require(s) new equipment or freeze protection measures, if any, within 48 months of development of the Corrective Action Plan.

7.2 Implement the Corrective Action Plan in accordance with the specified timetable;

7.3 Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Part 7.1.

7.4 Document in a declaration, with justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each CAP, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each CAP and the completion of actions for each CAP including revision history of each CAP. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1 Perform an annual review and update the Generator Cold Weather Constraint declaration as needed;

8.2 Update the operating limitations associated with capability and availability per Part 1.2 if applicable; and

8.3 Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review of its Generator Cold Weather Constraint declaration, updated the operating limitations, if applicable, and provided the declaration to the Balancing Authority. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and the sharing of each declaration as specified by the Balancing Authority.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revisions since the last audit, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.

- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constrain declaration, plus each revision since the last audit, for Requirement R8 and Measure M8. The Generator Owner shall keep data or evidence to show compliance with Requirement R8 Part 8.3 for three years.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	**Moderate VSL**	**High VSL**	**Severe VSL**
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the

	criteria in Requirement R3 for 5% or less of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for 5% or less of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for 5% or less of its units.	more than 5%, but less than or equal to 10% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 5%, but less than or equal to 10% of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 5%, but less than or equal to 10% of its units.	more than 10%, but less than or equal to 20% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 10%, but less than or equal to 20% of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 10%, but less than or equal to 20% of its units.	criteria in Requirement R3 for more than 20% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 20% of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 20% of its units.
R4.	The Generator Owner implemented a cold weather preparedness plan(s), but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s), but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as

	described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel.	described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel.	described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel.	described in Requirement R5 to the greater of: • four applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a CAP, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's CAP failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.4.	The Generator Owner's CAP failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.4.	The Generator Owner's CAP failed to comply with three or more of the elements in Requirement R6, Parts 6.1 through 6.4. OR The Generator Owner did not develop a CAP as required by Requirement R6.
R7.	The Generator Owner implemented a CAP, but failed to update the CAP when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a CAP, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a CAP, but failed to implement the Corrective Action Plan within the specified timetable in accordance with Requirement R7 Part 7.2, or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1 in accordance with Requirement R7 Part 7.3.	The Generator Owner failed to implement a CAP in accordance with Requirement R7, or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7 Part 7.4.

R8.		The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.3.	The Generator Owner failed to comply with two of the elements in Requirement R8, Parts 8.1 through 8.3.	The Generator Owner failed to comply with any of the elements in Requirement R8, Parts 8.1 through 8.3.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the initial draft of the proposed standard for a formal 45-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal or informal comment period with ballot	6/5/23 – 7/20/23
XX-day formal or informal comment period with additional ballot	TBD

Anticipated Actions	Date
10-day final ballot	TBD
Board adoption	October 2023

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component - Any generating unit component or associated ~~fixed fuel supply component~~Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.

Fixed Fuel Supply Component - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

~~**Extreme Cold Weather Temperature** – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.~~

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit ~~and exceeding~~ but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint(s) – A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas:

- Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.

- Commercial Constraint - A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation.
- Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2, but is not being balloted at this time.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-~~1~~2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

4.1. Functional Entities:

4.1.1. Generator Owner

4.1.2. Generator Operator

4.2. Facilities:

4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following ~~Bulk Electric System (~~BES~~)~~ resources:

~~**4.2.1.1** A Bulk Electric System generating unit that commits or is obligated to serve a Balancing Authority load pursuant to a tariff obligation, state requirement as defined by the relevant electric regulatory authority, or other contractual arrangement, rule, or regulation, for a continuous run of four hours or more at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius); or~~

4.2.1.1. A BES generating resource identified in the BES definition, Inclusion I2 and I4; or

~~**4.2.1.2**~~ A Blackstart Resource

~~**4.2.1** Exemptions:~~

~~**4.2.1.4.**~~**4.2.1.2.** ~~Any Bulk Electric System generating unit included under Section 4.2.1 above that has a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) under Requirement R3 Part 3.1 and as part of~~ , identified in the ~~required five year review in Requirement R4 Part 4.1 is exempt from further requirements in this standard~~BES definition, Inclusion I3.

~~**5.0.0.0** A Bulk Electric System generating unit that is not committed or obligated to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) for any continuous run of more than four hours, but is called upon to operate for more than four hours in order to assist in the mitigation of BES Emergencies, Capacity~~

~~Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius).~~

~~6.~~5. **Effective Date:** See Implementation Plan for Project 2021-07~~.~~ Phase 2.

B. Requirements and Measures

R1. ~~For~~ At least once every five years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within six months of the recalculation; and

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1 Generating unit(s) operating limitations in cold weather to include:

1.2.1.1 Capability and availability;

1.2.1.2 Fuel supply and inventory concerns;

1.2.1.3 Fuel switching capabilities; and

1.2.1.4 Environmental constraints.

1.2.2 Generating unit(s) minimum:

- Design temperature and if available, concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and engineering analysis, operating data or design information that support its generating unit minimum temperature.

~~R1.~~R2. Applicable to generating units with a commercial operation date ~~subsequent to [Effective Date of this requirement], the Generator Owner shall~~on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

2.1 ~~Implement~~ Have freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate ~~for~~:

2.1.1 At the unit(s)' Extreme Cold Weather Temperature;

2.1.2 For (i) a period of not less than twelve (12) continuous hours ~~at the Extreme Cold Weather Temperature for the unit(s), assuming a~~, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; and

2.1.3 With a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components~~; or~~.

~~2.1~~2.2 ~~Explain in a declaration any technical, commercial, or operational constraints, as defined by the~~ Each Generator Owner~~,~~ that ~~preclude the ability to implement appropriate~~does not have freeze protection measures ~~to provide capability of operating for twelve (12) hours at the documented Extreme Cold Weather Temperature.~~as required by Requirement R2 Part 2.1 shall develop a Corrective Action Plan.

M2. Each Generator Owner will have dated evidence that demonstrates it has ~~the capability to operate~~freeze protection measures for its unit(s) in accordance with Requirement ~~R1.~~ R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include~~, but is not limited to,~~ the following (electronic or hardcopy format): ~~Documentation of cold weather preparedness plan~~Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of ~~design features, any declaration that contains dated documentation to support constraints identified by the Generator Owner.~~freeze protection measures, and CAP(s).

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

R3. ~~For each~~Applicable to generating unit(s) in commercial operation prior to ~~[Effective Date of this requirement], the Generator Owner shall ensure its generating unit(s)~~October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] and is not capable of operating at its Extreme Cold Weather Temperature shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

3.1 Develop a Corrective Action Plan to add new or modify existing freeze ~~protection measures as needed to provide the capability to operate for a period of not less than one (1) hour at the unit(s) Extreme Cold Weather Temperature. Generating unit(s) that are not capable of operating for one (1) hour at its Extreme Cold Weather Temperature shall develop a Corrective Action Plan (CAP) for the identified issues, including identification of any needed modifications to~~ protection measures to provide such capability;

3.2 Update the cold weather preparedness plan required under Requirement ~~R3. [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]~~R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with ~~R2~~Requirement R3, or it has developed a CAP for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating ~~units~~unit(s) minimum temperature per Part ~~3.5~~1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures~~, cold weather preparedness plan~~, and CAP(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

4.1 The lowest calculated Extreme Cold Weather Temperature for ~~their~~each unit~~(s) including the calculation date and source of temperature~~, as determined in Requirement R1;[3]

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

~~4.1~~4.2 The generating unit cold weather data~~;–~~, as determined in Part 1.2;

~~4.2~~4.3 Documentation identifying~~ the~~ Generator Cold Weather Critical Components;

~~4.3~~4.4 Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

~~4.4~~4.5 Annual inspection and maintenance of generating unit(s) freeze protection measures~~; and~~.

~~**3.1** Generating unit(s) cold weather data, to include:~~

~~**3.1.1** Generating unit(s) operating limitations in cold weather to include:~~

~~Capability and availability;~~

~~**3.1.1.1** Fuel supply and inventory concerns;~~

~~**3.1.1.1** Fuel switching capabilities; and~~

~~**3.1.1.1** Environmental constraints.~~

~~**3.1.1** Generating unit(s) minimum:~~

- ~~Design temperature;~~
- ~~Historical operating temperature; or~~
- ~~Current cold weather performance temperature determined by an engineering analysis.~~

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement ~~R3~~R4. Examples of documentation to demonstrate inspections and maintenance has been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

~~**R2.** Once every five calendar years, each Generator Owner shall for each generating unit: *[Violation Risk Factor: Low] [Time Horizon: Operations Planning, Real-Time Operations]*~~

~~**4.1** Calculate the Extreme Cold Weather Temperature, and update the cold weather preparedness plan if this temperature is now lower than the previous lowest calculation;~~

~~**4.1** Review its documented generating unit(s) minimum temperature contained within its cold weather preparedness plan(s), pursuant to Part 3.5.2; and~~

~~**4.1** Review whether its generating units have the freeze protection measures required to operate at the Extreme Cold Weather Temperature pursuant to R1 or R2 as applicable, and if not develop a CAP for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3.~~

~~**M0.** Each Generator Owner will have dated, documented evidence that it reviewed temperature data and updated its cold weather preparedness plan(s) in accordance with Requirement R4.~~

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement ~~R3.~~ R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner ~~that owns a~~ shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall ~~develop a CAP,~~be developed within 150 days or by July 1, whichever is earlier, ~~that contains~~and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1 A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2 A review of applicability to similar equipment at ~~other~~ generating units owned by the Generator Owner;

6.3 An identification of ~~any temporary~~ operating limitations or impacts to the cold weather preparedness plan~~,~~ that would apply until execution of the corrective action(s) identified in the ~~CAP.~~Corrective Action Plan; and

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

6.4 An identification of updates to the list of Generator Cold Weather Critical Components or their freeze protection measures in the cold weather preparedness plan(s) required under Requirement R4.

M6. Each Generator Owner will have documented evidence that it developed a ~~CAP~~Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): CAP(s) and updated cold weather preparedness plan(s) where indicated as needed by the CAP.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1 Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1 Specify action(s) that address(es) existing equipment or freeze protection measures, if any, within 24 months of development of the Corrective Action Plan; and

7.1.2 Specify action(s) that require(s) new equipment or freeze protection measures, if any, within 48 months of development of the Corrective Action Plan.

7.2 Implement ~~each CAP developed pursuant to Requirements R2, R4, or R6, or explain~~the Corrective Action Plan in accordance with the specified timetable;

7.3 Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Part 7.1.

7.4 Document in a declaration~~ why corrective actions are not being implemented due to any technical, commercial, or operational constraints as defined by~~, with justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan.

~~7.2 Update each CAP if actions or timetables change, until completed.~~

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each CAP, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement ~~R7~~R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each CAP and the completion of actions for each CAP including revision history of each CAP. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1 Perform an annual review and update the Generator Cold Weather Constraint declaration as needed;

8.2 Update the operating limitations associated with capability and availability per Part 1.2 if applicable; and

8.3 Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review of its Generator Cold Weather Constraint declaration, updated the operating limitations, if applicable, and provided the declaration to the Balancing Authority. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and the sharing of each declaration as specified by the Balancing Authority.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall ~~keep~~retain data or evidence to ~~show compliance for three years~~support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revisions since the last audit, for Requirement R1~~, R3, and R5~~ and Measure M1~~, M3, and M5~~.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for ~~Requirement~~Requirements R2 and ~~Measure~~R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4. ~~The Generator Owner shall retain any Corrective Action Plans under Requirement R4 Part 4.3 for three years or until the Corrective Action Plan is complete, whichever timeframe is greater.~~
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.

- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constrain declaration, plus each revision since the last audit, for Requirement R8 and Measure M8. The Generator Owner shall keep data or evidence to show compliance with Requirement R8 Part 8.3 for three years.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, "Compliance Monitoring and Enforcement Program" refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	**Moderate VSL**	**High VSL**	**Severe VSL**
R1.	The Generator Owner did not ~~have freeze protection measure(s) meeting~~calculate the ~~criteria in~~Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its units. ~~OR~~ ~~The Generator Owner did not explain in a declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures for 5% or less of its units.~~	The Generator Owner did not ~~have freeze protection measure(s) meeting~~calculate the ~~criteria in~~Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its units. ~~OR~~ ~~The Generator Owner did not explain in a declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures for more than 5%, but less than or equal to 10% of its units.~~	The Generator Owner did not ~~have freeze protection measure(s) meeting~~calculate the ~~criteria in~~Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its units. ~~OR~~ ~~The Generator Owner did not explain in a declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures for more than 10%, but less than or equal to 20% of its units.~~	The Generator Owner did not ~~have freeze protection measure(s) meeting~~calculate the ~~criteria~~Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more ~~than~~ 20% of its units. ~~OR~~ ~~The Generator Owner did not explain in a declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures for more than 20% of its units.~~
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its units. OR

	OR The Generator Owner did not develop a ~~CAP as required by Requirement R2~~Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	5%, but less than or equal to 10% of its units. OR The Generator Owner did not develop a ~~CAP as required by Requirement R2~~Corrective Action Plan for more than 5%, but less than or equal to 10% of its units.	OR The Generator Owner did not develop a ~~CAP as required by Requirement R2~~Corrective Action Plan for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not develop a ~~CAP as required by Requirement R2~~Corrective Action Plan for more than 20% of its units.
R3.	The Generator Owner ~~implemented a~~did not have freeze protection measure(s) meeting the criteria in Requirement R3 for 5% or less of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for 5% or less of its units. OR The Generator Owner did not update its cold weather preparedness plan~~(s), but failed to maintain it~~ as required by Requirement R3 Part 3.2 for 5% or less of its units.	The Generator ~~Owner's~~Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 5%, but less than or equal to 10% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 5%, but less than or equal to 10% of its units. OR The Generator Owner did not update its cold weather preparedness plan ~~failed to include one of the applicable Parts within~~as required by Requirement R3 Part 3.2 for more than 5%, but less than or equal to 10% of its units.	The Generator Owner ~~had and maintained a~~did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 10%, but less than or equal to 20% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 10%, but less than or equal to 20% of its units. OR The Generator Owner did not update its cold weather preparedness plan~~(s), but failed to implement it.~~ ~~OR~~ ~~The Generator Owner's cold weather preparedness plan~~	The Generator Owner ~~does~~did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 20% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 20% of its units. OR The Generator Owner did not update its cold weather preparedness plan~~(s).~~ ~~OR~~ ~~The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R3.~~ as required by Requirement R3

			~~failed to include two of the applicable requirement parts within Requirement R3.~~ as required by Requirement R3 Part 3.2 for more than 10%, but less than or equal to 20% of its units.	Part 3.2 for more than 20% of its units.
R4.	The Generator Owner ~~completed the actions required in Requirement R4,~~implemented a cold weather preparedness plan(s), but ~~was late by 30 calendar days or less~~failed to maintain it.	The Generator ~~Owner completed~~Owner's cold weather preparedness plan failed to include one of the ~~actions required in~~applicable Parts within Requirement R4~~, but was late by greater than 30 calendar days, but less than or equal to 60 calendar days~~.	The Generator Owner had and maintained a cold weather preparedness plan(s), but failed to ~~complete one~~implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts ~~in~~within Requirement R4 ~~Parts 4.1 through 4.3;~~ ~~OR~~ ~~The Generator Owner completed the actions required in Requirement R4, but was late by greater than 60 calendar days.~~ .	The Generator Owner does not have cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to ~~complete two~~include three or more of the applicable requirement parts ~~in~~within Requirement R4 ~~Parts 4.1 through 4.3.~~ .
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as

	described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel.	described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel.	described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel.	described in Requirement R5 to the greater of: • four applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a CAP, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's CAP failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.~~3~~4.	The Generator Owner's CAP failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.~~3~~4.	The Generator Owner's CAP failed to comply with three or more of the elements in Requirement R6, Parts 6.1 through 6.~~3~~4. OR The Generator Owner did not develop a CAP as required by Requirement R6.
R7.	The Generator Owner implemented a CAP~~ or explained in a declaration why corrective actions are not being implemented~~, but failed to update the CAP when ~~actions or timetables~~corrective action(s) changed~~,~~ in accordance with Requirement R7.	The Generator Owner implemented a CAP, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a CAP, but failed to implement the Corrective Action Plan within the specified timetable in accordance with Requirement R7 Part 7.2, or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1 in accordance with Requirement R7 Part 7.3.	The Generator Owner failed to implement a CAP ~~or explain~~in accordance with Requirement R7, or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7 Part 7.4.

R8.		The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.3.	The Generator Owner failed to comply with two of the elements in Requirement R8, Parts 8.1 through 8.3.	The Generator Owner failed to comply with any of the elements in Requirement R8, Parts 8.1 through 8.3.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	~~TBD~~October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2
Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements and making other enhancements directed by FERC in its February 2023 order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with FERC's February 2023 order, and proposed Requirement R8 addresses the provision of Generator Cold Weather Constraint declarations to the Balancing Authority, also consistent with FERC's February 2023 order. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter "Phase 1 Approval Order"), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1, but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

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Unofficial Comment Form

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2

Do not use this form for submitting comments. Use the Standards Balloting and Commenting System (SBS) to submit comments on **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2** by **8 p.m. Eastern, Thursday, July 20, 2023.**

Additional information is available on the project page. If you have questions, contact Senior Standards Developer, Alison Oswald (via email), or at 404-446-9668.

Background Information

Extreme cold weather and precipitation affected the south central United States February 8-20, 2021. Many generating units experienced outages, derates, or failures to start, resulting in energy and transmission emergencies (referred to as “the Event"). The total Event firm Load shed was the largest controlled firm Load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of Load after the August 2003 northeast blackout and the August 1996 west coast blackout. The Event was most severe February 15-18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized bulk-power system reliability. A joint inquiry was conducted to discover reliability-related findings and recommendations from FERC, NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity staff Joint Staff Inquiry into the February 2021 Cold Weather Grid Operations (“Joint Inquiry Report”) was published on November 16, 2021.

The scope of the proposed project is to address the ten recommendations for new or enhanced NERC Reliability Standards proposed by the Joint Inquiry Report. In November 2021, the NERC Board of Trustees (Board) approved a Board Resolution directing that new or revised Reliability Standards addressing these recommendations be completed in accordance with the timelines recommended by the joint inquiry team, as follows:

- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2022/2023: development completed by September 30, 2022, for the Board’s consideration in October 2022 to address Key Recommendations 1d, 1e, 1f, and 1j;
- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2023/2024: development completed by September 30, 2023, for the Board’s consideration in October 2023 to address Key Recommendations 1a, 1b, 1c, 1g, 1h, and 1i.

On February 16, 2023, the Commission issued an order approving proposed Reliability Standards EOP-011-3 and EOP-012-1. The order directed changes in five areas of the standard. Reliability Standard EOP-012-2 was revised to address Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory

Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[1]

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[1] Order.

Questions

In Paragraph 6 of the FERC order, the Commission directed NERC to include in the Standard objective criteria on permissible technical, commercial, and operational constraints.

1. Do you agree that the proposed definition of Generator Cold Weather Constraint provides additional clarity to the requirements on EOP-012-2, is auditable and meets the directive in the FERC Order in the most effective way? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

   ☐ Yes
   ☐ No

   Comments:

Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

2. Do you agree that the proposed Requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data per Key Recommendation 1c? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

   ☐ Yes
   ☐ No

   Comments:

3. Do you agree that the proposed date of October 1, 2027 is an appropriate time frame for units that enter commercial operation after this date to implement the enhanced cold weather requirements that are contained within Requirement R2? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

   ☐ Yes
   ☐ No

   Comments:

4. The SDT structured R2.1 and R2.2 in the vein of an if/then statement. The intent being, if a GO implements R2.1, then they would be compliant with Requirement R2. If a GO does not implement R2.1 but implements R2.2, then they would be compliant with Requirement R2. Stated differently, a GO would only risk non-compliance with Requirement R2 if they did neither R2.1 nor R2.2. Does the proposed language, as drafted by the SDT, provide that clarity and reflect the SDT's intent as stated above? If not, please provide suggested clarifying language.

☐ Yes
☐ No

Comments:

5. The SDT proposes two timeframes, 24 months for addressing existing equipment or freeze protection and 48 months for implementing new equipment or freeze protection, for Corrective Action Plans in Requirement R7. Do you agree that the timeframes proposed are appropriate? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

☐ Yes
☐ No

Comments:

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to provide the constraint declaration to the Balancing Authority and update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

6. Do you agree that Requirement R8 is sufficient to inform the Balancing Authority of the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical or procedural justification.

☐ Yes
☐ No

Comments:

7. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. If you think an alternate timeframe is needed,

please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

	EOP-012-1	EOP-012-2
Effective Date	10/1/2024	10/1/2024
Have Capability to Operate at ECWT or CAP Developed	4/1/2028	10/1/2025
CAP Completed	no end date specified	10/1/2027 (R7.1.1) or 10/1/2029 (R7.1.2)

☐ Yes
☐ No

Comments:

8. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical or procedural justification.

☐ Yes
☐ No

Comments:

9. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Comments:

Mapping Document

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Summary

This mapping document maps the recommendations from The February 2021 Cold Weather Outages in Texas and the South Central United States report (The Report) to proposed Reliability Standard EOP-012-2. This mapping document also maps how the drafting team considered FERC's directives for further revisions to Reliability Standard EOP-012-1 in its February 16, 2023 approval order[1] in proposed EOP-012-2.

Recommendation 1a

To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start.

Standard: EOP-012-2

Requirement in Approved Standard	Revisions in Standard or Other Action	Description and Change Justification
Generator Cold Weather Critical Component - Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	The SDT developed an appropriate definition of Cold Weather Critical Components to help with the readability of the requirements in the standard.

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[1] *N. Am. Elec. Reliability Corp.*., 182 FERC ¶ 61,094 (2023) (approving Reliability Standards EOP-011-3 and EOP-012-1 and directing further revisions to EOP-012-1 and the implementation plan) ("February 2023 Order").

	Fixed Fuel Supply Component - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.2** Documentation identifying the Generator Cold Weather Critical Components;	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.3** Documentation identifying Generator Cold Weather Critical Components;	The SDT maintained the language in approved EOP-012-1 R3 and moved it to R4 for Generators Owners to identify Generator Cold Weather Critical Components to meet recommendation 1a.

Recommendation 1b

To require Generator Owners to identify and implement freeze protection measures for the cold-weather-critical components and systems. The Generator Owner should consider previous freeze-related issues experienced by the generating unit, and any corrective or mitigation actions taken in response. At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
Generator Cold Weather Critical Component - Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	The SDT developed an appropriate definition of Cold Weather Critical Components to help with the readability of the requirements in the standard.

R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.3** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generators Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.
This requirement does not exist in the currently approved standard.	**R6.** Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2]	To meet recommendation 1b "the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary", the drafting team has proposed R6.4 through the CAP process

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: **6.4** An identification of updates to the list of Generator Cold Weather Critical Components or their freeze protection measures in the cold weather preparedness plan(s) required under Requirement R4.	for Generator Owners to update the list of Generator Cold Weather Critical Components in the cold weather preparedness plan in R4.

Recommendation 1c

To revise EOP-011-2, R7.3.2, to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
3.5.2 Generating unit(s) minimum: • Design temperature; • Historical operating temperature; or • Current cold weather performance temperature determined by an engineering analysis.	**1.2.2** Generating unit(s) minimum: • Design temperature and if available, concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes concurrent wind speed and precipitation.	The SDT has proposed modifications to the existing language in EOP-012-1 R3.5.2 and moved it to R1.2.2 to account for the effects of precipitation and the cooling effects of wind when providing the generating unit minimum temperature.
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.3** Documentation of freeze protection measures implemented	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generators Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.

on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	

FERC February 2023 Order Directives – Applicability (Paragraphs 58-60)

The Commission directed NERC to revise the applicability of the standard to ensure that it captures all BES generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions, consistent with the drafting team's stated intent. The Commission also directed NERC to revise the EOP-012-1 standard to ensure that all BES generating units are required to maintain and train on cold weather preparedness plans and maintain information regarding cold weather operating parameters consistent with EOP-011-2 Requirements R7 and R8.

The Commission deferred its decision on whether to approve the proposed effective date of EOP-011-3 until NERC submits the revised applicability section of EOP-012 to ensure all entities currently covered by the EOP-011-2 standard would remain covered under the revised EOP-012 standard.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 58: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to ensure that it captures all bulk electric system generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions...NERC should ensure the modified applicability is implemented as of the effective date of Reliability Standard EOP-012-1."	**4.2. Facilities:** **4.2.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources: **4.2.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.2.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3.	The SDT determined that EOP-012-1 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a Bulk Electric System (BES) resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC

		Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Requirements for generator cold weather freeze protection measures would continue to apply only to generation that is relied upon during freezing conditions, consistent with EOP-012-1 and the recommendations of the Joint Inquiry Report. However, those limitations are identified in those specific requirements, rather than in the applicability sections of the standard.
PP 59-60: "Given the lack of clarity in the proposed applicability criteria for EOP-012-1, we are concerned that the standard could apply to significantly fewer generators than the existing Reliability Standard EOP-011-2 Requirements R7 and R8…. Furthermore, we are concerned that the proposed applicability criteria for EOP-012-1 and retirement of EOP-011-2 Requirements R7 and R8 will eliminate valuable information on cold weather preparedness of generating	**R1.** At least once every five years, each Generator Owner shall, for each of its applicable generating unit(s): **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) and identify the calculation date and source of temperature data; and **1.1.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update	The SDT proposes a new R1 which does not have any exclusions meaning all generating units subject to this standard under the facilities section will be subject to this requirement. For more information on applicable entities please see the write up above.

units that typically do not operate during the winter…. The loss of this information concerns us as the proposed applicability of EOP-012-1 recognizes that units that do not typically run during the winter may be called upon during emergencies. We therefore direct NERC to modify EOP-012-1 to ensure that this information remains available.”	its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within six months of the recalculation; and **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1** Capability and availability; **1.2.1.2** Fuel supply and inventory concerns; **1.2.1.3** Fuel switching capabilities; and **1.2.1.4** Environmental constraints. **1.2.2** Generating unit(s) minimum: • Design temperature and if available, concurrent	

	wind speed and precipitation; - Historical operating temperature at least one hour in duration, and if available, concurrent wind speed and precipitation; or - Current cold weather performance temperature determined by an engineering analysis, which includes concurrent wind speed and precipitation.	

FERC Order Directives - Generator Constraints to Implementing Winterization Requirements (Paragraph 66)

The Commission directed NERC to develop modifications to EOP-012-1 Requirements R1 and R7 to address concerns related to generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures. Specifically, the Commission directed NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 66: "[W]e direct NERC…to develop and submit modifications to Reliability Standard EOP-012-1 Requirements R1 and R7 to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures and to ensure that the constraint declarations may not be used to opt-out of compliance with the Standard or obligations set forth in a corrective action plan. Specifically, we direct NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7.	**<u>Generator Cold Weather Constraint(s)</u>** – A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas: • Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES. • Commercial Constraint - A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would	The SDT proposed a new defined term, Generator Cold Weather Constraint, which includes criteria on what qualifies as a permissible constraint. Additionally, the SDT has identified the Balancing Authority as the appropriate entity to receive the Generator Owner's constraint declarations as demonstrated in Requirement R8.

	result in the generating unit not operating or not being put into service at the time of the evaluation. - Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel. *AND* **R8.** Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: **8.1** Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; **8.2** Update the operating limitations associated with capability and availability per Part 1.2 if applicable; and **8.3** Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority.	

FERC Order Directives - Generator Capability Requirements (Paragraphs 89-90)

The Commission directed NERC to modify EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the standard. The Commission also directed NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 89: [W]e direct NERC to modify the Standard to clarify Reliability Standard EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard.”	**4.3. Facilities:** **4.3.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following BES resources: **4.3.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.3.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3. *AND* **R2.** Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or	The SDT proposes a new facilities section with include all BES generating units in the standard. Additionally, Requirement R2.1.2 has been modified to cover the example in the order “(e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard.” Requirement R2.1.2 provides that intermittent energy resources should have the capability to provide as much generation as operationally possible if that is less than 12 hours.

	below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[3] shall: 2.1 Have freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate: **2.1.1** At the unit(s)' Extreme Cold Weather Temperature; **2.1.2** For (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; and	

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[3] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

P 90: “We also find that the one-hour continuous operations requirement in Reliability Standard EOP-012-1 Requirement R2 is too short of a period to adequately meet the purpose of the Standard to ensure generating units “mitigate the reliability impacts of extreme cold weather[.]” Thus, we direct NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.	**R3.** Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), and is not capable of operating at its Extreme Cold Weather Temperature shall: **3.1** Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide such capability; **3.2** Update the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures.	The SDT did not intend for the requirement to be interpreted as a 1 – hour reliability requirement. As such, the 1-hour statement has been removed from the standard to make sure there is no misunderstanding.

FERC Order Directives - Corrective Action Plan Deadlines (Paragraph 79)
For any requirement requiring the development of a corrective action plan to address capability or cold weather performance issues, the Commission directed NERC to include a deadline or maximum period for the completion of corrective action plan measures.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 79: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to address concerns related to the lack of an implementation timeframe for corrective action plans. Specifically, we direct NERC to include in the Standard a deadline or maximum period for the implementation completion of corrective action plans under the Standard."	**R7.** Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: **7.1** Include a timetable for implementing the selected corrective action(s) that shall: **7.1.1** Specify action(s) that address(es) existing equipment or freeze protection measures, if any, within 24 months of development of the Corrective Action Plan; and **7.1.2** Specify action(s) that require(s) new equipment or freeze protection measures, if any, within 48 months of development of the Corrective Action Plan.	The SDT proposed new Requirement R7 which include timetables for CAP completion. These timetables are consistent with those provided for corrective actions in the TPL-007 standard.

FERC Order Directives - Implementation Plan Considerations (Paragraphs 37, 58, 88)
The Commission directed NERC to require a shorter implementation period than five years post approval, as well as a staggered implementation for unit(s) across a generator owner's fleet (e.g., 30% compliant by Year X, 60% compliant by Year Y, 100% compliant by Year Z). The Commission also directed NERC to develop standards modifications addressing standard applicability and other matters without delaying the effective date of EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 88: "[W]e direct NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet… Although we are giving NERC the discretion to determine what the effective date should be shortened to, we also emphasize that industry has been aware of and alerted to the need to prepare their generating units for cold weather since at least 2011. NERC should consider the amount of time that industry has already had to implement freeze protection measures when determining the appropriate shorter implementation period."	**Compliance Date for EOP-012-2 - Requirement R3** Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.	The Commission allows NERC to propose an equally effective and efficient solution to a solution offered by the Commission to address a reliability matter. The Commission expressed concern regarding the length of the original EOP-012-1 implementation plan and identified to reduce reliability risks more quickly – a shortened plan with a staggered implementation period. The standard drafting team has determined an alternative proposal, to shorten the implementation period for winterization measures to 12 months across an entire fleet, addresses the Commission's concerns in an equally effective and efficient manner. The implementation of such measures would be subject to deadlines for Corrective Action Plan measures in EOP-012-2

		Requirement R7. This proposal provides certainty as to the timeframes required for action, reduces reliability risks more quickly than the EOP-012-1 plan it replaces, and would avoid the administrative inefficiencies associated with tracking and demonstrating compliance with a staggered implementation plan across a fleet.
P 37: "[W]e also direct NERC to develop modifications to address the concerns regarding Requirements R1 and R7, as well as other concerns we have identified as to other aspects of Reliability Standard EOP-012-1, without delaying the effective date of Reliability Standard EOP-012-1." P 58: "…NERC should ensure the modified applicability [of the EOP-012 standard] is implemented as of the effective date of Reliability Standard EOP-012-1."		Under the proposed implementation plan, Reliability Standard EOP-012-2 would become effective on the later of: (1) October 1, 2024, which is the date EOP-012-1 is scheduled to become effective; or (2) the first day of the first calendar quarter that is three months following Commission approval. Thus, the effective date of a revised EOP-012 standard addressing the Commission's concerns would not be delayed past the effective date of EOP-012-1, so long as EOP-012-2 is approved before July 1, 2024. Any delay after that time would be modest and in the interest of providing sufficient notice to entities of their revised obligations.

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Violation Risk Factor and Violation Severity Level Justifications

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

This document provides the standard drafting team's (SDT's) justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination. Each requirement is assigned a VRF and a VSL. These elements support the determination of an initial value range for the Base Penalty Amount regarding violations of requirements in FERC-approved Reliability Standards, as defined in the Electric Reliability Organization's (ERO) Sanctions Guidelines. The SDT applied the following NERC criteria and FERC Guidelines when developing the VRFs and VSLs for the requirements.

NERC Criteria for Violation Risk Factors

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

A requirement that, if violated, could directly affect the electrical state or the capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System. However, violation of a medium risk requirement is unlikely to lead to Bulk Electric System instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to Bulk Electric System instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System.

FERC Guidelines for Violation Risk Factors

Guideline (1) – Consistency with the Conclusions of the Final Blackout Report

FERC seeks to ensure that VRFs assigned to Requirements of Reliability Standards in these identified areas appropriately reflect their historical critical impact on the reliability of the Bulk-Power System. In the VSL Order, FERC listed critical areas (from the Final Blackout Report) where violations could severely affect the reliability of the Bulk-Power System:

- Emergency operations
- Vegetation management
- Operator personnel training
- Protection systems and their coordination
- Operating tools and backup facilities
- Reactive power and voltage control
- System modeling and data exchange
- Communication protocol and facilities
- Requirements to determine equipment ratings
- Synchronized data recorders
- Clearer criteria for operationally critical facilities
- Appropriate use of transmission loading relief.

Guideline (2) – Consistency within a Reliability Standard

FERC expects a rational connection between the sub-Requirement VRF assignments and the main Requirement VRF assignment.

Guideline (3) – Consistency among Reliability Standards

FERC expects the assignment of VRFs corresponding to Requirements that address similar reliability goals in different Reliability Standards would be treated comparably.

Guideline (4) – Consistency with NERC's Definition of the Violation Risk Factor Level

Guideline (4) was developed to evaluate whether the assignment of a particular VRF level conforms to NERC's definition of that risk level.

Guideline (5) – Treatment of Requirements that Co-mingle More Than One Obligation

Where a single Requirement co-mingles a higher risk reliability objective and a lesser risk reliability objective, the VRF assignment for such Requirements must not be watered down to reflect the lower risk level associated with the less important objective of the Reliability Standard.

NERC Criteria for Violation Severity Levels

VSLs define the degree to which compliance with a requirement was not achieved. Each requirement must have at least one VSL. While it is preferable to have four VSLs for each requirement, some requirements do not have multiple "degrees" of noncompliant performance and may have only one, two, or three VSLs.

VSLs should be based on NERC's overarching criteria shown in the table below:

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

FERC Order of Violation Severity Levels

The FERC VSL guidelines are presented below, followed by an analysis of whether the VSLs proposed for each requirement in the standard meet the FERC Guidelines for assessing VSLs:

Guideline (1) – Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance

Compare the VSLs to any prior levels of non-compliance and avoid significant changes that may encourage a lower level of compliance than was required when levels of non-compliance were used.

Guideline (2) – Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties

A violation of a "binary" type requirement must be a "Severe" VSL.

Do not use ambiguous terms such as "minor" and "significant" to describe noncompliant performance.

Guideline (3) – Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement

VSLs should not expand on what is required in the requirement.

Guideline (4) – Violation Severity Level Assignment Should Be Based on a Single Violation, Not on a Cumulative Number of Violations

Unless otherwise stated in the requirement, each instance of non-compliance with a requirement is a separate violation. Section 4 of the Sanctions Guidelines states that assessing penalties on a per violation per day basis is the "default" for penalty calculations.

EOP-012-2

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
NERC VRF Discussion	A VRF of Lower is appropriate due to the fact that calculating the Extreme Cold Weather Temperature and identifying generating unit cold weather data is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Lower VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Lower VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC	This VRF is in line with the definition of a Lower VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.

VRF Justifications for EOP-012-2, Requirement R1

Proposed VRF	Lower
Definitions of VRFs	
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R1

Lower	Moderate	High	Severe
The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its units.

VSL Justifications for EOP-012-2, Requirement R1

FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R1	
Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R2

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R2

The VSL did change due to changes in the standard language.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of medium is appropriate due to the fact generating units that are not capable of operating at its Extreme Cold Weather Temperature could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R3			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for 5% or less of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for 5% or less of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for 5% or less of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 5%, but less than or equal to 10% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 5%, but less than or equal to 10% of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 5%, but less than or equal to 10% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 10%, but less than or equal to 20% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 10%, but less than or equal to 20% of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 20% of its units. OR The Generator Owner did not develop a CAP as required by Requirement R3 for more than 20% of its units. OR The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 20% of its units.

VSL Justifications for EOP-012-2, Requirement R3	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSLs do not have the unintended consequence of lowering the level of compliance.

VSL Justifications for EOP-012-2, Requirement R3	
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justifications for EOP-012-2, Requirement R4	
Proposed VRF	**High**
NERC VRF Discussion	A VRF of High is appropriate due to the fact failing to implement or maintain a cold weather preparedness plan could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition. Therefore, it is in line with the definition of a High VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of High VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a High VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R4			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner implemented a cold weather preparedness plan(s), but failed to maintain it.	The Generator Owner’s cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s), but failed to implement it. OR The Generator Owner’s cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have cold weather preparedness plan(s). OR The Generator Owner’s cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.

VSL Justifications for EOP-012-2, Requirement R4	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R4	
Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R5

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R5

The VSL did not change from the previous EOP-012-1 Reliability Standard.

VRF Justification for EOP-012-2, Requirement R6

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R6

VSL had minor changes due to minor revisions in the standard language.

VRF Justification for EOP-012-2, Requirement R7

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R7

VSL had minor changes due to minor revisions in the standard language.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of Medium is appropriate due to the fact that not updating Generator Cold Weather Constraint declaration and updating operating limitations associated with capability and availability could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R8			
Lower	**Moderate**	**High**	**Severe**
N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.3.	The Generator Owner failed to comply with two of the elements in Requirement R8, Parts 8.1 through 8.3.	The Generator Owner failed to comply with any of the elements in Requirement R8, Parts 8.1 through 8.3.

VSL Justifications for EOP-012-2, Requirement R8	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.

VSL Justifications for EOP-012-2, Requirement R8	
Should Be Consistent with the Corresponding Requirement	
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

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FAQ Document

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Summary

The Standard Drafting Team (SDT) has performed various outreach efforts during June 2023 and has received feedback on the proposed EOP-012-2. The SDT revised the proposed EOP-012-2 standard based on industry comment, the final FERC, NERC, Regional Entity Staff Report ("Joint Report"), and the FERC order issued on February 16, 2023. This document will provide additional clarity around the SDT's intent on various requirements contained within the standard based on themes identified in outreach efforts.

Definitions

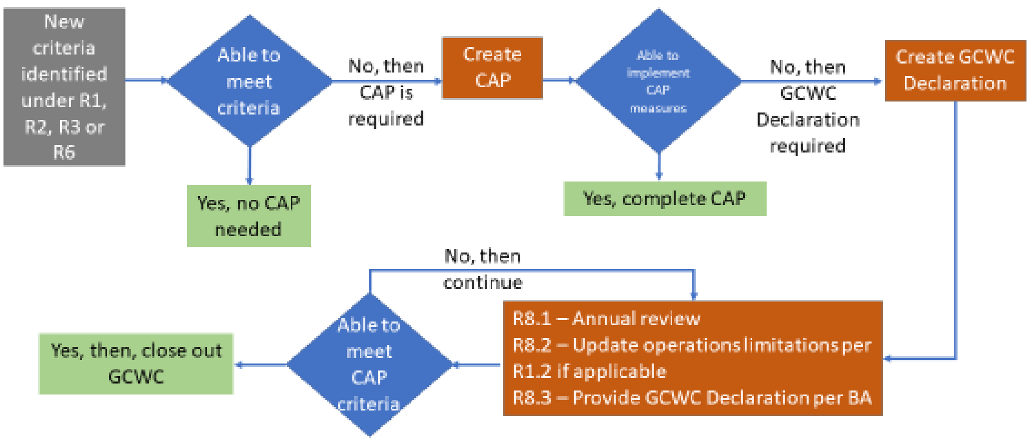
Generator Cold Weather Constraints

Overall concern whether each Generator Cold Weather Constraint should be its own declaration or whether Generator Owner's (GOs) should include an overall declaration with all of the constraints for a unit.

SDT Response

Each Generator Cold Weather Constraint declaration shall be independent of other declarations for the same unit or type of unit. This means that each freeze protection measure that is not deployed for a unit will have its own unique declaration. This allows for the GO to perform an annual review on each constraint and remove that individual constraint when warranted. The intent of the drafting team is to not require a unique new declaration during the annual review process.

Generator Cold Weather Constraint (GCWC) - Declaration Process (EOP-012-2)



Technical Constraint Concerns
Multiple comments stating that while the revised language provides more clarity, it is still not clear enough. Proposal to only require technical enhancements that are provided by the original equipment Manufacture (OEM) of the equipment. Also, concerns expressed that allowing technical constraints for new technologies that have not demonstrated successful operation for a period may disincentivize implementation of new technologies. In addition, there were concerns that potential replacement of existing equipment should not be a limiting factor with regards to technical constraints. Additional questions regarding cold weather negative impacts on generating unit equipment and whether this could be considered a technical constraint. Furthermore, there were comments about the design requirements of the core unit (i.e. combustion turbine itself) not meeting the Extreme Cold Weather Temperature (ECWT) and whether the new standard would require the retirement or replacement of the generating unit as a whole.

SDT Response
As shown in the comments above, to the extent that the SDT provides additional clarity on the technical constraints, this clarifying language can lead to additional questions as well. Therefore, the SDT has to weigh the benefits of applying further clarity in the standard with the risks of being overly prescriptive. The intent of the SDT is for GO's to implement proven freeze protection technologies to new and existing units that are reliable and do not negatively impact the generating unit reliability as a whole. This includes ensuring that the freeze protection technologies deployed do not have the potential to damage the generating unit equipment that is in service. To the extent that operating at extreme cold temperatures results in risks to the generating unit itself that can't be mitigated, this in and of itself could be considered a technical constraint. The SDT does not believe that mandatory NERC Reliability Standards are the proper tool to incent adoption of technological breakthroughs for the industry. This technical innovation should be incentivized by other mechanisms and upon achieving successful and repeatable results over time, these technologies should become mainstream in the Bulk Electric System (BES) and at that time, the current standard as written would require their implementation in the BES. The SDT does believe that NERC Reliability Standards are the correct place to ensure that proven industry best practices around freeze protection are employed across the BES.

Commercial Constraint Concerns
The SDT has received multiple comments that the current language in Commercial constraint *'implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or being put into service at the time of the evaluation'* may represent too high of a bar for declaring a commercial constraint. Industry has proposed that a cost benefit analysis be performed on each selected freeze protection measure and only those that are cost justified would need to be applied.

SDT Response
The SDT has developed the proposed standard to ensure the reliability of the BES as a whole during extreme cold weather events. In doing so, it intentionally set a high bar for what would constitute a commercial exception to ensure that the predisposition of GO's would be to properly install proven freeze protection measures to ensure that their units can reliably operate at their ECWT. In doing this, there is a

full understanding that this will result in some level of investment in additional freeze protection measures. This is not different than what has occurred with previous NERC reliability standards, but the SDT does understand that this particular standard may require investment beyond other standards. Even so, the SDT does not believe a full cost benefit analysis is warranted for each individual freeze protection measure. The concept of the commercial exception is that there will be certain freeze protection measures that are so egregiously expensive (i.e. replacing the combustion turbine itself) that it would not serve the overall reliably of the grid as it would take inordinate amounts of capital that may be better spent expanding the overall quantity of dispatchable generation for instance.   Another instance where an exception would be warranted is if the generating unit is slated for retirement in the near future and the additional freeze protection measures would only be in service for a very short time period. This capital may be better served to be spent on units that will be relied upon over many winter periods for extreme cold weather operation. The 48-month timeframe on the corrective action plans for new freeze protection measures may help in these situations as any units slotted for retirement within that 48-month timeframe would not require additional freeze protection installations.

Operational Constraint Concerns

The SDT has received multiple questions regarding the language to *'protect'… 'the surrounding environment, or personnel'* and what was the intent of this language.

SDT Response

The intent of the language with regards to protecting the environment and personnel was to ensure that utilities were not required to install freeze protection measures that may result in additional emissions above and beyond their regulated limits or to require the installation of freeze protection measures that may impair the safety of their personnel. In both of these instances, declarations of operational constraints would be warranted.

Effects of Wind and Precipitation

Question 1

What does the standard mean by the term freezing? It appears that the SDT means to include three separate issues within the undefined term "freezing" including actual freezing (water turning to ice), malfunctions caused by fluids becoming too viscous (technically this is congealing, not freezing, but it's functionally equivalent) and accretion/accumulation of moisture (such as blade icing on a wind turbine, snow accumulation on solar panels or ice accumulating on the air inlets of a gas turbine), which is not a form of freezing. Please clarify.

SDT Response

The SDT intent with the requirement is that freezing includes both freezing water to ice and the other forms mentioned above. The SDT will make clarifying changes to address this issue that will not be a substantive change to the standard based on feedback from the comment and ballot period.

Question 2

There were multiple comments that highlight the extreme variability around each extreme cold weather event and how the conditions at the generating unit sites will not generally match the data provided to the Balancing Authority around the generating unit(s) minimum temperature contained in Requirement 1.2.2.

SDT Response

The SDT agrees with the concerns expressed that each extreme cold weather event experienced by the generating unit is unique and as such, the expected performance of the generating unit can only be partially informed by the unit's performance during previous extreme cold weather events. To address this concern, the SDT is proposing modifications in TOP-002 to address this uncertainty at the Balancing Authority Area level with the intent to provide improved reliability.

Question 3

Requirement R4, Part 4.4 should be revised to make the implementation of measures to address the effects of precipitation and the cooling effect of the wind mandatory if the data is available, rather than permissive. Additionally, Part 4.4 should be expanded to cover the effects of all precipitation, rather than just freezing precipitation.

SDT Response

The SDT included language in Part 4.4 that GOs should be considering wind and precipitation when implementing freeze protection measures. The SDT does not agree that the standards should be expanded to cover all effects of precipitation as this team is focused on extreme cold weather and cannot address weather events outside of that per the SAR.

Corrective Action Plan Timeline

Question 1

Since the Corrective Action Plan (CAP) may have to address anywhere from 1 to 1000 wind turbines, solar panels, or a large number of individual thermal units, it is impossible to say how long it will take to fund modifications, find resources to perform the work, and schedule outages with the Balancing Authorities (BA) to allow work to be completed, all while attempting to complete ongoing maintenance to allow generators to run. While these time limits have been used by NERC in standards, specifically TPL-007, we note that TPL-007 requires a CAP only for a single unit, not a fleet of units in addition to being very limited in the scope of the issue to be covered rather than open to any possible cause of a trip, derate or failure to start. Therefore, the scope of a CAP under TPL-007 is very limited while the scope of the CAPs envisioned under EOP-012 will vary greatly as the CAP is not limited to a single unit or even a single plant. Due to this significant difference, why is a limited time frame being proposed? Either the scope of the CAP must be limited to a single unit, or at most a single plant, or the time period to complete the CAP needs to be modified to allow an amount of time per unit identified, instead of a time limit for the entire CAP.

SDT Response

SDT believes in the vast majority of circumstances the 2 and 4-year time frames are sufficient timeframes to implement freeze protection measures required by the standards. However there may be circumstances when 2 or 4 years may not be enough time and the current standard has provided the entity with the ability to provide a declaration in those circumstances. The team believes the ability to provide this declaration gives an appropriate opportunity for entities that cannot complete these actions to provide a declaration to their regional entity to propose alternatives to the stated timeframes.

Question 2

Why is a full year needed to develop a CAP and update the cold weather preparedness plan under R3, especially given that R1.1.1 only allows 6 months for CAP creation or revision if needed due to a drop in the ECWT and given that R6 only allows 150 days or by July 1, whichever is earlier, to develop a CAP after a Generator Cold Weather Reliability Event?

SDT Response

The SDT believes a full year under R3 is appropriate because an entity should be addressing a generating fleet as a whole and not just individual generating units.

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Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

June 2023

RELIABILITY | RESILIENCE | SECURITY

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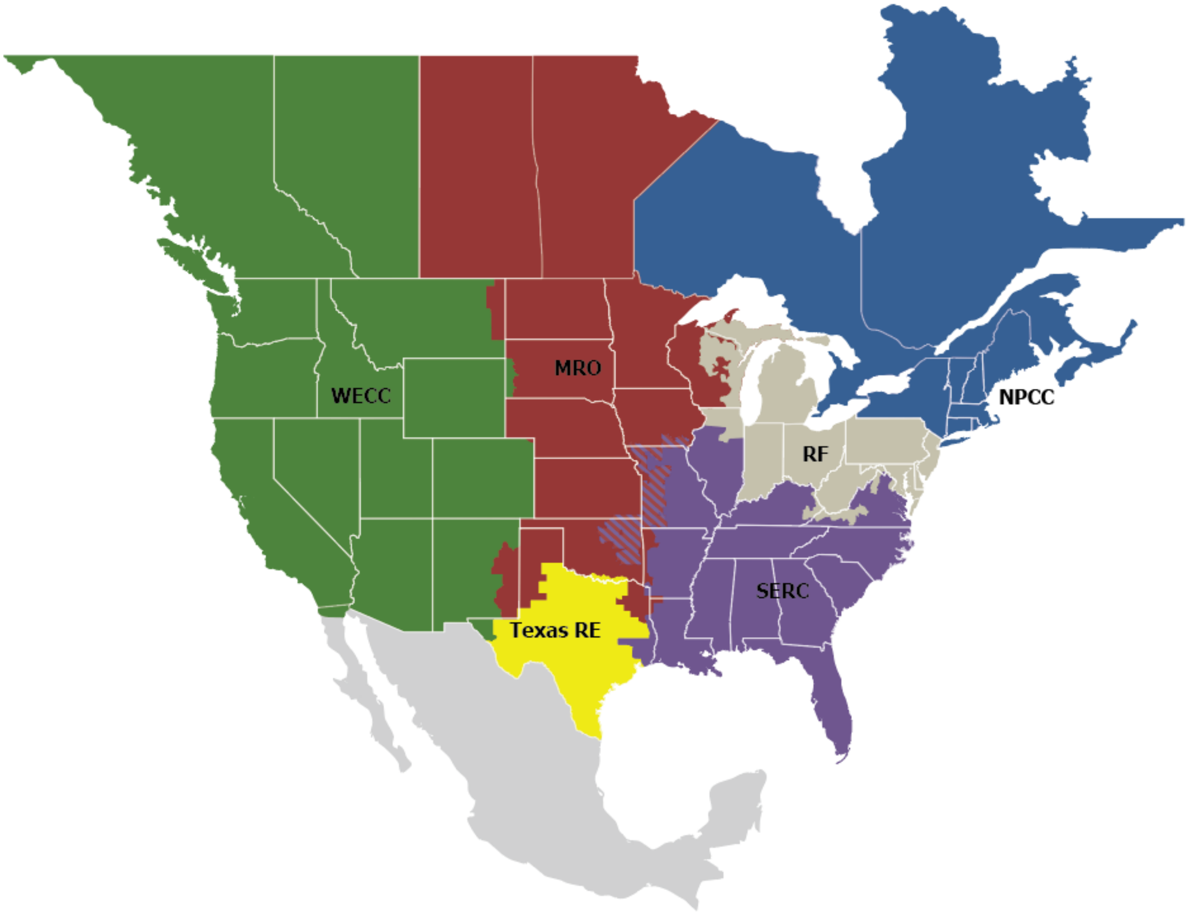
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities, is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entity boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources would include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. Generator Owners may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports at a 99%+ availability. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature but, upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility.

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

Generator Cold Weather Critical Component

Any generating unit component or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing, and are critical to the operation of generating units. Generator Owners should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner (TO) would not constitute a freezing condition in the context of this Standard and therefore these lines would not be considered a Generator Cold Weather Critical Component.

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit and exceeding 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

<u>Key Recommendation 1d:</u> To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of de-rate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as 4 hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs).

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint(s)

A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas:

> *• Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.*

• Commercial Constraint – A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation.

• Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

The SDT Reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. The SDT has provided additional clarity via the definition above to further remove the ambiguity regarding technical, commercial, and operational constraints. The essence of the constraint should be such that implementing the freeze protection measure is not possible or would be more detrimental than not implementing the freeze protection measure when considering the overall impacts to reliability. The following examples are provided by the SDT for clarity:

- Commercial Constraints: voided warranties, accelerated retirement of the generating unit, cancellation of new projects, etc.
- Operational Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction in summer capability, etc.
- Technical Constraints: no examples provided due to the dynamic nature of technology

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard.

Facilities

4.1. Facilities:

_4.1.1._ _Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:_

_4.1.1.1._ _A BES generating resource identified in the BES definition, Inclusion I2 and I4; or_

_4.1.1.2._ _A Blackstart Resource, identified in the BES definition, Inclusion I3._

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

1.1. *Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) and identify the calculation date and source of temperature data; and*

1.1.1. *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within six months of the recalculation; and*

1.2. *Identify generating unit(s) cold weather data, to include:*

1.2.1 *Generating unit(s) operating limitations in cold weather to include:*

1.2.1.1 *Capability and availability;*

1.2.1.2 *Fuel supply and inventory concerns;*

1.2.1.3 *Fuel switching capabilities; and*

1.2.1.4 *Environmental constraints.*

1.2.2 *Generating unit(s) minimum:*

- *Design temperature and if available, concurrent wind speed and precipitation;*
- *Historical operating temperature at least one hour in duration, and if available, concurrent wind speed and precipitation; or*
- *Current cold weather performance temperature determined by an engineering analysis, which includes concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and precipitation. Consideration of wind and precipitation, along with the minimum temperature, provide a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

2.1 *Have freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate:*

2.1.1 *At the unit(s)' Extreme Cold Weather Temperature;*

2.1.2 *For (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; and*

2.1.3 *With a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components.*

2.2 *Each Generator Owner that does not have freeze protection measures as required by Requirement R2 Part 2.1 shall develop a Corrective Action Plan.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, 2024). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

New generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then has up to 48 months to complete the CAP to meet Requirement R2. In addition, it is recognized that Generator Cold Weather Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.3, the option for the GO to make a declaration supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter in most regions of the US and Canada. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather condition.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), and is not capable of operating at its Extreme Cold Weather Temperature shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

3.1 *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide such capability;*

3.2 *Update the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures.*

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3 as to not create an unreasonable compliance obligation. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

4.1 *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*

4.2 *The generating unit cold weather data, as determined in Part 1.2;*

4.3 *Documentation identifying Generator Cold Weather Critical Components;*

4.4 *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*

4.5 *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2, and is intended to be used and reviewed regularly by the GO; R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003 and IRO-01. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The document *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[6], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[6] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

R5. *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an "annual" basis. The Joint Inquiry Report explains "Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area."[7] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word "annual" to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The training provided to appropriate personnel should be comprehensive. This includes training for personnel on actions taken to prepare the generating unit(s) for cold weather operations. This also includes training for personnel on necessary actions to take when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, review of special inspections or rounds implemented during severe weather, fuel switching procedures, etc.

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[7] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1 *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*

6.2 *A review of applicability to similar equipment at generating units owned by the Generator Owner;*

6.3 *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan; and*

6.4 *An identification of updates to the list of Generator Cold Weather Critical Components or their freeze protection measures in the cold weather preparedness plan(s) required under Requirement R4.*

Key Recommendation 1d: *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.*

While there were no specific directives regarding R6 (creation of a CAP) in the FERC Order, the SDT added R 6.4 for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues.

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of de-rate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event effects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads "A list of actions and an associated timetable for implementation to remedy a specific problem." As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as 4 hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of “following an outage or reserve shutdown”, since the definition of reserve shutdown is different in GADS than it is in some of the RTO’s.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site’s ECWT. By using the site’s ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that Generators may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1 *Include a timetable for implementing the selected corrective action(s) that shall:*

7.1.1 *Specify action(s) that address(es) existing equipment or freeze protection measures, if any, within 24 months of development of the Corrective Action Plan; and*

7.1.2 *Specify action(s) that require(s) new equipment or freeze protection measures, if any, within 48 months of development of the Corrective Action Plan.*

7.2 *Implement the Corrective Action Plan in accordance with the specified timetable;*

7.3 *Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Part 7.1.*

7.4 *Document in a declaration, with justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future.

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. Generator Owners that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

Requirement R8

R8. *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

- ***8.1*** *Perform an annual review and update the Generator Cold Weather Constraint declaration as needed;*
- ***8.2*** *Update the operating limitations associated with capability and availability per Part 1.2 if applicable; and*
- ***8.3*** *Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority.*

In the FERC order, the Commission expressed concern that a Generator Owner may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT[8]. To address this concern, the SDT has developed R8 to require the GO to provide the constraint declaration to the Balancing Authority and update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

This information is critical for the Balancing Authority to make informed decisions regarding the operation of the power grid during cold weather events. The operating parameters of a generating unit can change over time due to various factors. These changes can impact the generator's ability to operate effectively during cold weather conditions. By reviewing and updating the declaration annually, the GO can ensure that the declaration reflects any changes made since the last review.

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[8] FERC Order, 182 FERC ¶ 61,094 at P 64.

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Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Formal Comment Period Open through July 20, 2023
Ballot Pools Forming through July 5, 2023

Now Available

A formal comment period for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2**, is open through **8 p.m. Eastern, Thursday, July 20, 2023** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

Commenting

Use the Standards Balloting and Commenting System (SBS) to submit comments. An unofficial Word version of the comment form is posted on the project page.

Reminder Regarding Corporate RBB Memberships

Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact **ballotadmin@nerc.net** to assist with the removal of any duplicate registrations.

Ballot Pools

Ballot pools are being formed through **8 p.m. Eastern, Wednesday, July 5, 2023.** Registered Ballot Body members can join the ballot pools here.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*
- *Please be mindful of ballot and comment period closing dates. We ask to **allow at least 48 hours** for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts **prior to the last day** of a comment/ballot period.*

Next Steps

Initial ballots for the standard and implementation plan, as well as non-binding polls of the associated Violation Risk Factors and Violation Severity Levels, will be conducted **July 11 – 20, 2023**.

For more information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Senior Standards Developer, Alison Oswald (via email) or at 404-446-9668. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination” in the Description Box.

North American Electric Reliability Corporation
3353 Peachtree Rd, NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

Comment Report

Project Name:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 - Draft 1 - EOP-012-2
Comment Period Start Date:	6/5/2023
Comment Period End Date:	7/20/2023
Associated Ballots:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll IN 1 NB 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 IN 1 ST 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 IN 1 OT

There were 79 sets of responses, including comments from approximately 177 different people from approximately 119 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

See the unofficial comment form for additional information:https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

1. Do you agree that the proposed definition of Generator Cold Weather Constraint provides additional clarity to the requirements on EOP-012-2, is auditable and meets the directive in the FERC Order in the most effective way? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

2. Do you agree that the proposed Requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data per Key Recommendation 1c? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

3. Do you agree that the proposed date of October 1, 2027 is an appropriate time frame for units that enter commercial operation after this date to implement the enhanced cold weather requirements that are contained within Requirement R2? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

4. The SDT structured R2.1 and R2.2 in the vein of an if/then statement. The intent being, if a GO implements R2.1, then they would be compliant with Requirement R2. If a GO does not implement R2.1 but implements R2.2, then they would be compliant with Requirement R2. Stated differently, a GO would only risk non-compliance with Requirement R2 if they did neither R2.1 nor R2.2. Does the proposed language, as drafted by the SDT, provide that clarity and reflect the SDT's intent as stated above? If not, please provide suggested clarifying language.

5. The SDT proposes two timeframes, 24 months for addressing existing equipment or freeze protection and 48 months for implementing new equipment or freeze protection, for Corrective Action Plans in Requirement R7. Do you agree that the timeframes proposed are appropriate? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

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6. Do you agree that Requirement R8 is sufficient to inform the Balancing Authority of the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical or procedural justification.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

7. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement

which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

8. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical or procedural justification.

9. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF
					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
Santee Cooper	Don Cribb	5		Santee Cooper	Paul Camilletti	Santee Cooper	1,3,5,6	SERC
					Mark Taylor	Santee Cooper	1,3,5,6	SERC
Jennie Wike	Jennie Wike		WECC	Tacoma Power	Jennie Wike	Tacoma Public Utilities	1,3,4,5,6	WECC
					John Merrell	Tacoma Public Utilities (Tacoma, WA)	1	WECC
					John Nierenberg	Tacoma Public Utilities (Tacoma, WA)	3	WECC
					Hien Ho	Tacoma Public Utilities (Tacoma, WA)	4	WECC
					Terry Gifford	Tacoma Public Utilities (Tacoma, WA)	6	WECC
					Ozan Ferrin	Tacoma Public Utilities (Tacoma, WA)	5	WECC
ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Bill Pezalla	Old Dominion Electric Cooperative	3,4	RF
					Jennifer Bray	Arizona Electric Power Cooperative, Inc.	1	WECC
					Sara Orr	Golden Spread Electric Cooperative, Inc.	5	Texas RE

					Chris Adams	East Kentucky Power Cooperative	3	SERC
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Nick Fogleman	Prairie Power, Inc.	1	SERC
					Austin Towne	Western Farmers Electric Cooperative	1,5	MRO
MRO	Jou Yang	1,2,3,4,5,6	MRO	MRO NSRF	Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Chris Bills	City of Independence, Power and Light Department	5	MRO
					Fred Meyer	Algonquin Power Co.	3	MRO
					Christopher Bills	City of Independence Power & Light	3,5	MRO
					Larry Heckert	Alliant Energy Corporation Services, Inc.	4	MRO
					Marc Gomez	Southwestern Power Administration	1	MRO
					Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	MRO
					Bryan Sherrow	Board of Public Utilities	1	MRO
					Terry Harbour	Berkshire Hathaway Energy - MidAmerican Energy Co.	1	MRO
					Terry Harbour	MidAmerican Energy Company	1,3	MRO
					Jamison Cawley	Nebraska Public Power District	1,3,5	MRO

					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Shonda McCain	Omaha Public Power District	6	MRO
					George E Brown	Pattern Operators LP	5	MRO
					George Brown	Acciona Energy USA	5	MRO
					Jaimin Patel	Saskatchewan Power Cooperation	1	MRO
					Kimberly Bentley	Western Area Power Administration	1,6	MRO
					Jay Sethi	Manitoba Hydro	1,3,5,6	MRO
					Michael Ayotte	ITC Holdings	1	MRO
Entergy	Julie Hall	6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC
Electric Reliability Council of Texas, Inc.	Kennedy Meier	2		ISO/RTO Council Standards Review Committee (SRC)	Bobbi Welch	Midcontinent ISO, Inc.	2	NA - Not Applicable
					Darcy O'Connell	California ISO	2	WECC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Kennedy Meier	Electric Reliability Council of Texas, Inc.	2	Texas RE
					Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	NA - Not Applicable

					Thomas Foster	PJM Interconnection, L.L.C.	2	RF
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy-FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Michael Johnson	Michael Johnson		WECC	PG&E All Segments	Marco Rios	Pacific Gas and Electric Company	1	WECC
					Sandra Ellis	Pacific Gas and Electric Company	3	WECC
					Frank Lee	Pacific Gas and Electric Company	5	WECC
Southern Company - Southern Company Services, Inc.	Pamela Hunter	1,3,5,6	SERC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Jim Howell, Jr.	Southern Company - Southern Company Generation	5	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
Patricia Robertson	Patricia Robertson		WECC	BC Hydro Balloters	Adrian Andreoiu	BC Hydro and Power Authority	1	WECC

					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC
					Jeffrey Streifling	NB Power Corporation	1	NPCC
					Michele Tondalo	United Illuminating Co.	1	NPCC
					Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
					Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
					Randy Buswell	Vermont Electric Power Company	1	NPCC
					James Grant	NYISO	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
					Randy MacDonald	New Brunswick Power Corporation	2	NPCC
					Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
					David Burke	Orange and Rockland	3	NPCC
					Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
					Salvatore Spagnolo	New York Power Authority	1	NPCC

					Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
					David Kwan	Ontario Power Generation	4	NPCC
					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Sean Cavote	PSEG	4	NPCC
					Jason Chandler	Con Edison	5	NPCC
					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					John Hastings	National Grid	1	NPCC
					Michael Jones	National Grid USA	1	NPCC
					Joshua London	Eversource Energy	1	NPCC
Ryan Strom	Ryan Strom		RF	Buckeye Power Group	Carl Spaetzel	Buckeye Power, Inc.	3	RF
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Kevin Zemanek	Buckeye Power, Inc.	5	RF
Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC

					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC

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1. Do you agree that the proposed definition of Generator Cold Weather Constraint provides additional clarity to the requirements on EOP-012-2, is auditable and meets the directive in the FERC Order in the most effective way? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Tacoma Power agrees that the SDT's approach to create definitions of technical, commercial and operational constraints addresses the FERC Order criteria. However, Tacoma Power does not agree that the proposed definitions are clear and auditable. Additional clarification is needed for entities to understand the scope of what's included in these constraints.

For example, the "surrounding environment" in the Operational Constraint definition can be interpreted in different ways. Does the SDT mean "surrounding environment" to include EPA emission limits, FERC limits on water levels, or agreements with local tribal authorities? Tacoma Power recommends adding environmental examples for the Operational Constraint criteria in the Technical Rationale, as follows: "*Operational Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction in summer capability,* ***EPA emission limits, FERC water level limits, agreements with local authorities,*** *etc.*"

Tacoma Power is concerned that the Technical Constraints definition is creating a situation where an Entity and an auditor will disagree as to who determines whether there are technology solutions that exist. Tacoma Power recommends that the definition should be modified to state "*...as determined by the applicable Entity*" to ensure it's clear that the responsibility is with the Entity to determine the technology solutions.

Likes 2	Luminant - Luminant Energy, 6, Ferrell Russell; Platte River Power Authority, 3, Kiess Richard
Dislikes 0	

Response

Thomas Foltz - AEP - 5

Answer	No
Document Name	

Comment

AEP agrees in principle with the overall direction of the SDT in Phase II of Project 2021-07, and offers the following comments and feedback for consideration.

AEP does not believe that the definition of Commercial Constraint is clear. It is our understanding that it is not the SDT's intent to require that significant expense be invested in units with a limited remaining life, however the team has also stated that they might still want "less significant investments" made as a result of a Cold Weather Event. Without a clear definition, it might appear that some in industry are choosing economics over reliability, even if that is not actually the case. While AEP agrees with the intent of the constraint and the spirit in which it was drafted, we do not believe the language of the constraint and definition currently articulates their intent.

AEP recommends that the definition of Commercial Constraint be revised as follows: “A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require unreasonably expensive modifications, significant expenditures on equipment with minimal remaining life, or significant expenditures to change the equipment’s original design basis to meet the requirements.”

AEP also provides the following questions and scenarios for consideration.

* Does the phrase “… generating unit not operating...” mean the unit will be retired or the unit is not selected to participate in the market due to the unit’s operating cost?

* Regarding the phrase “…into service at the time of evaluation.” Is this when the freeze protection measure(s) are being evaluated for implementation, or instead, is it when a unit is committing to participate in the day ahead market?

* In the situation where a unit is within a few years of retirement and it has a cold weather event requiring a significant investment, does the GO have the ability to make a declaration to not invest the dollars in that unit? Either way, the present language does not provide this clarity.

* The phrase “limit its operation” within the definition of Operational Constraint is not clear, and renders the definition ineffective. Does the phrase perhaps infer a limitation of generation output?

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

There should also be some allowance for processes or procedures to mitigate constraints that allow a generating owner or operator to not install or implement protection measures in areas where historically they have not been needed. For instance water can freeze in a cooling tower basin but the process requires constant circulation of water or constant flow of water in the basn as the mitigating option. As we read the standard we would be required to put heaters or enclosures on the cooling tower basin to eliminate all possible chance of water to freeze within the basin. However this would be unrealistic and would not allow the cooling tower basin, pumps, etc to work as intended.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

Technical Constraint declarations would be subject to opinions as to what is proven versus unproven. There is a no objective, auditable means of making decisions in this respect, and conservatism requires accommodating the outlook of the equipment owners. They should not have to subject their very expensive, very important generation units to retrofits of an experimental nature.

The only way to prove a Commercial Constraint would be a financial study that shows the cost is greater than the market can bear. To do such a study, there are many inputs that would be arguable. NERC auditors do not have the information necessary to pass judgment in this respect.

NERC says moreover in its Rules of Procedure, part 3 of sect. 302 (Essential Attributes for Technically Excellent Reliability Standards), “Each Reliability Standard shall state one or more performance Requirements, which if achieved by the applicable entities, will provide for a reliable Bulk Power System, consistent with good utility practices and the public interest. Each Requirement is not a ‘lowest common denominator’ compromise, but instead achieves an objective that is the best approach for Bulk Power System reliability, taking account of the ***costs and benefits*** [emphasis added] of implementing the proposal.”   It is unreasonable to demand that retrofits be applied unless they are so overwhelmingly expensive that they drive the GO out of business. This is not a cost-benefit analysis.

The entire thrust of EOP-012 on this subject is inappropriate. Existing units were built in accordance with all rules and regulations, including those of NERC and ISOs, who were fully aware of the importance of wintertime reliability. GOs should not be expected to now retrofit or re-engineer the units to meet the expectation to perform to a new level without the regulators being willing to pay for these upgrades.

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

There should also be some allowance for processes or procedures to mitigate constraints that allow a generating owner or operator to not install or implement protection measures in areas where historically they have not been needed. For instance water can freeze in a cooling tower basin but the process requires constant circulation of water or constant flow of water in the basn as the mitigating option. As we read the standard we would be required to put heaters or enclosures on the cooling tower basin to eliminate all possible chance of water to freeze within the basin. However this would be unrealistic and would not allow the cooling tower basin, pumps, etc to work as intended.

Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	No
Document Name	

Comment

PGAE agrees and supports the NAGF comments.

Likes 0	
Dislikes 0	

Response

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	No
Document Name	

Comment

MRO NSRF agrees that the SDT's approach to create definitions of technical, commercial and operational constraints addresses the FERC Order criteria. However, MRO NSRF does not agree that the proposed definitions are clear and auditable. Additional clarification is needed for entities to understand the scope of what's included in these constraints.

For example, the "surrounding environment" in the Operational Constraint definition can be interpreted in different ways. Does the SDT mean "surrounding environment" to include EPA emission limits, FERC limits on water levels, or agreements with local tribal authorities? MRO NSRF recommends adding environmental examples for the Operational Constraint criteria in the Technical Rationale, as follows: "*Operational Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction in summer capability,* ***EPA emission limits, FERC water level limits, agreements with local authorities,*** *etc."*

MRO NSRF is concerned that the Technical Constraints definition is creating a situation where an Entity and an auditor will disagree as to who determines whether there are technology solutions that exist. MRO NSRF recommends that the definition should be modified to state "*...as determined by the applicable Entity*" to ensure it's clear that the responsibility is with the Entity to determine the technology solutions.

Similarly, MRO NSRF is concerned about the auditability of Commercial Constraints. Including language as recommended above, *"...as determined by the applicable Entity",* would help to alleviate these concerns.

Likes 0	
Dislikes 0	

Response

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	No
Document Name	
Comment	
The proposed language is focused too much on Thermal Generation, and doesn't consider Hydro facilities that are designed to operate in cold weather. Small hydro entities which are designed to operate in cold weather will have a compliance responsibility that will become administrative risks to this standard. This will raise the risk of non-compliance for these entities, even though reliability will not be enhanced.	
Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	
Response	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	No
Document Name	
Comment	
SMUD and BANC agree with the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	

Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	

Although the definitions of the various constraints offer increased clarity on inclusion criteria, these are still problematic. The Technical constraint would be subject to opinions as to what is proven versus unproven and appears to be exclusive to OEM type making it problematic and restrictive. As far as the commercial constraint is concerned, this would require considerable financial study that would be based upon the individual company's business model. This will differ from company to company depending upon financial risk matters as well as change with industry economic trends. NRG does not believe that the constraints can be objectively audited- auditors are not financial experts. NRG offers this suggestion that a standardized process instituted to evaluate criteria (based upon certain parameters) and accepted prior to implementation to prevent inequality in evaluation. Overall these constraints should be defined clearer and examples provided as to what would be acceptable.

Likes 0	
Dislikes 0	
Response	

Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	

Although the definitions of the various constraints offer increased clarity on inclusion criteria, these are still problematic. The Technical constraint would be subject to opinions as to what is proven versus unproven and appears to be exclusive to OEM type making it problematic and restrictive. As far as the commercial constraint is concerned, this would require considerable financial study that would be based upon the individual company's business model. This will differ from company to company depending upon financial risk matters as well as change with industry economic trends. NRG does not believe that the constraints can be objectively audited- auditors are not financial experts. NRG offers this suggestion that a standardized process instituted to evaluate criteria (based upon certain parameters) and accepted prior to implementation to prevent inequality in evaluation. Overall these constraints should be defined clearer and examples provided as to what would be acceptable.

Likes 0	
Dislikes 0	
Response	

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	No
Document Name	
Comment	

Buckeye supports the comments of ACES:

We appreciate the effort that the SDT put into drafting the objective Generator Cold Weather Constraint criteria as directed by FERC. However, it is our opinion that the proposed definition still contains a bit of ambiguity that needs to be addressed.
Consider the proposed definition of a Technical Constraint. The last sentence states: “Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.” How is the GO to know how long a technology must be “demonstrated” in order for the timeframe to be considered “sufficient”?
Lastly, while the definition of Commercial Constraint is not ambiguous, it does set a very high bar. We appreciate that this is a difficult term to clearly define; however, under the currently proposed definition, the GO could potentially incur a significant financial impact without reaching the threshold that would preclude the generating unit from operating.

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	No
Document Name	

Comment

NV Energy agrees that the SDT’s approach to create definitions of technical, commercial and operational constraints addresses the FERC Order criteria. However, NV Energy does not agree that the proposed definitions are clear and auditable. Additional clarification is needed for entities to understand the scope of what’s included in these constraints.

For example, the “surrounding environment” in the Operational Constraint definition can be interpreted in different ways. Does the SDT mean “surrounding environment” to include EPA emission limits, FERC limits on water levels, or agreements with local tribal authorities? NV Energy recommends adding environmental examples for the Operational Constraint criteria in the Technical Rationale, as follows: “Operational Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction in summer capability, EPA emission limits, FERC water level limits, agreements with local authorities, etc.”

NV Energy is concerned that the Technical Constraints definition is creating a situation where an Entity and an auditor will disagree as to who determines whether there are technology solutions that exist. NV Energy recommends that the definition should be modified to state “...as determined by the applicable Entity” to ensure it’s clear that the responsibility is with the Entity to determine the technology solutions.

Similarly, NV Energy is concerned about the auditability of Commercial Constraints. Including language as recommended above, “...as determined by the applicable Entity”, would help to alleviate these concerns.

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC comments.

Additionally, ISO-NE would support the removal of “Commercial Constraint” from the definition of Generator Cold Weather Constraint and if a Generator desired to declare a commercial constraint due to cost or economics, they should utilize the proper filing process for relief as outlined in the NERC Rules of Procedure. This would be consistent with the filing process utilized for the IROL-CIP required upgrades.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

The NAGF does not agree with the proposed definition of Generator Cold Weather Constraint. We agree that the proposed definition does provide more clarity. However, the NAGF questions the auditability of the language used in the commercial and technical constraints.

The language used under a Technical Constraint would be subject to opinions as to what is proven versus unproven. The NAGF recommends that GOs should not have to install any cold weather reliability technologies other than those offered by the generation unit OEM or certified by them to ensure no warrantee related issues. GOs could otherwise be required to subject their generation units to retrofits of an experimental nature.

It would appear that the only way to prove a Commercial Constraint would be to develop a financial study that determines the cost of freeze protection upgrades is greater than the market can bear. To do such a study, there are many proprietary inputs needed that would be subject to review/audit, depending on who is performing the study. NERC auditors do not have the expertise necessary to opine on the validity of such a study, nor do they have information available to them to question such a study.

NERC states in its Rules of Procedure, part 3 of sect. 302 (Essential Attributes for Technically Excellent Reliability Standards), “Each Reliability Standard shall state one or more performance Requirements, which if achieved by the applicable entities, will provide for a reliable Bulk Power System, consistent with good utility practices and the public interest. Each Requirement is not a ‘lowest common denominator’ compromise, but instead achieves an objective that is the best approach for Bulk Power System reliability, taking account of the ***costs and benefits*** [emphasis added] of implementing the proposal.”   The NAGF believes that it is unreasonable to demand that retrofits be applied unless they are so overwhelmingly expensive that they drive the GO out of business. Existing units were built in accordance with all rules and regulations, including those of NERC and ISOs, who were fully aware of the importance of wintertime reliability. GOs should not be expected to now retrofit or re-engineer the units to meet the expectation to perform to a new level without a cost recovery mechanism in place to pay for these upgrades.

Likes 0	
Dislikes 0	

Response

Colin Chilcoat - Invenergy LLC - 6

Answer	No
Document Name	

Comment

The Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	No
Document Name	

Comment

Enel North America Inc. would like to thank the Standard Drafting Team for its continued efforts on these Cold Weather Reliability Standards. Enel does not agree that the proposed definition of Generator Cold Weather Constraint is auditable because the Technical, Commercial, and Operational Constraint areas currently introduce a wide array of interpretations. For example, within a Technical Constraint it is stated “Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.” A ‘sufficient period of time’ may vary among individual Generator Owners based on the level of risk each is willing to accept from a new technology.

Therefore, Enel recommends an amendment to the Generator Cold Weather Constraint(s) definition to explicitly state the Generator Owner should determine the criteria in which the constraint(s) would be applied.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC signed on to ACES comments:

We appreciate the effort that the SDT put into drafting the objective Generator Cold Weather Constraint criteria as directed by FERC. However, it is our opinion that the proposed definition still contains a bit of ambiguity that needs to be addressed.

Consider the proposed definition of a Technical Constraint. The last sentence states: “Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.” How is the GO to know how long a technology must be “demonstrated” in order for the timeframe to be considered “sufficient”?

Lastly, while the definition of Commercial Constraint is not ambiguous, it does set a very high bar. We appreciate that this is a difficult term to clearly define; however, under the currently proposed definition, the GO could potentially incur a significant financial impact without reaching the threshold that would preclude the generating unit from operating.

Likes 0	
Dislikes 0	

Response

Rhonda Jones - Invenergy LLC - 5,6

Answer	No
Document Name	

Comment

The Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.

Likes 0	
Dislikes 0	

Response

Tracy MacNicoll - Utility Services, Inc. - 4

Answer	No
Document Name	

Comment

The metric for uneconomical in commercial constraint should be more specific

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	

Comment

While AES CE agrees that additional clarity is provided in the proposed definition of Generator Cold Weather Constraints, we believe that the definition would still be subject to opinions. As mentioned in the Technical Rationale, the definition is provided in such a way that it leaves room for interpretation. This would present an extensive effort by entities to document a constraint to avoid subjective interpretation by audit teams. We recommend that the SDT develops an implementation guidance or a CMEP Practice Guide in parallel with EOP-012-2 effort to ensure consistent practices by audit teams across all regions in the interpretation of Generator Cold Weather Constraint.

Additionally, AES CE found the capitalized term “Generator Cold Weather Components” listed in the definition of Generator Cold Weather Constraint(s). Currently, we don’t see a definition for “Generator Cold Weather Components”. AES CE is seeking clarification from the Standard Drafting Team on whether this is a new term or an error.

Likes 0	
Dislikes 0	

Response

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	No
Document Name	

Comment

Southern Indiana Gas & Electric, Company (SIGE) supports the development of the Generator Cold Weather Constraints definition; however, SIGE believes additional clarity is needed. SIGE recommends modifying the Constraints definition to include the statement: “as determined by the applicable Entity” to clarify that the Entity is responsible for determining the technical solution, economic impact, and/or operational impact.

Additionally, the term, “surrounding environment” is not entirely clear – please provide clarification.

Likes 0	
Dislikes 0	

Response

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez

Answer	No
Document Name	

Comment

SRP agrees and supports NV Energy, AEP, and Tacoma Power comments.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

While the ISO/RTO Council (IRC) Standards Review Committee (SRC)[1] agrees that the proposed definition provides some additional clarity and auditability, the SRC urges consideration of the specific revisions proposed below that would better meet the directive in the FERC order and result in a clearer, more auditable Reliability Standard.

Commercial Constraints – The existing definition of a commercial constraint is overly broad and could lead to the exception swallowing the standard itself. As proposed, a commercial constraint would exist only if it "would result in a generating unit not operating or not being put into service at the time of the evaluation." It is unclear whether "not operating" is intended to refer to a long-term condition (such as mothballing or retirement) or a short-term condition, such as a decision not to offer a unit on a particular operating day. This definition is extremely elusive as to what would be the reason for the unit 'not operating' and consequently raises a host of compliance challenges.

Effectively, the commercial constraint definition would allow a unit owner to claim that a particular winterization task would, in its view, render the unit uneconomical to operate. However, this ability of a unit owner to effectively self-certify that installation of weatherization measures would be uneconomic would provide little in the way of consistency among unit owners and could allow resource owners to prioritize competitive concerns over reliability. Additionally, compliance constraint declarations should be auditable, but auditing a commercial constraint declaration under the current definition would require NERC and the Regions to effectively become economic regulators reviewing and auditing determinations of future market prices, underlying projections of future costs and returns, and a host of related economic analyses. This type of financial and economic auditing and regulation is not part of the appropriate role for NERC or the regional entities.

After engaging in lengthy internal discussions regarding the breadth and subjectivity of the commercial exemption, the SRC has come to the conclusion that the most reasonable way to prevent the commercial constraint exemption from swallowing the standard is to revise the definition such that a GO can only claim a commercial constraint for a resource if it has announced plans to retire that unit. Although retirement decisions can be reversed, a public notification of plans to retire a unit would allow an audit team to confirm the commercial impact to the unit without having to review and audit the underlying economic analyses that the resource owner performed. Such public notices also represent defined notifications that prompt system planners to develop alternatives to the continued operation of the unit. In those instances, little would be accomplished by requiring a unit with an announced imminent retirement date to invest in costly winterization upgrades.

For the above reasons, including the compliance challenges associated with such an open-ended commercial constraint exemption, the SRC urges consideration of this more limited definition of a commercial constraint.

Operational Constraints – To provide additional clarity and auditability, the SRC recommends that “would **cause** the generating unit to limit its operations . . .” be replaced with “would **require** the generating unit to limit its operations . . .” in the definition of an operational constraint. The SRC also recommends that the reference to "the surrounding environment" be removed from the definition of an operational constraint and that language be added specifying that an operational constraint exists “if implementation of selected freeze protection measure(s) would cause a violation of an environmental permit that cannot otherwise be mitigated.” This would result in a clearer, more auditable definition of *operational constraint*.

[1] For purposes of these comments, the IRC SRC includes CAISO, ERCOT, IESO, ISO-NE, PJM, MISO, NYISO, and SPP.

Likes 0	
Dislikes 0	

Response

Claudine Bates - Black Hills Corporation - 6

Answer	No
Document Name	

Comment

Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No

Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	

The proposed definition for a “Generator Cold Weather Constraint(s)” contains another capitalized term – Generator Cold Weather Component. Shouldn’t this be “Generator Cold Weather Critical Component”?

The first sentence under the ‘Technical Constraint’ sub-bullet is unclear. We suggest the circumstances representing a technical constraint be numbered or bulletized to better distinguish them. For example,

“*A technical constraint exists when* ***1)*** *there is no known technical solution for addressing the issue, or* ***2)*** *implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications.*”

The description in the ‘Operational Constraint’ sub-bullet needs further clarity. Is an operational constraint identified ahead of time (as part of Corrective Action Plan development) or in near Real-time during Corrective Action Plan implementation? We offer the following edits for the drafting team to consider if it’s an improvement:

"Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the ***for a*** *generating unit* ***during Real-time operations is expected*** *to limit its operations in order to protect* ***jeopardize*** *either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel* ***safety****."*

Would an operational constraint declaration related to reliability of the BES require supporting concurrence from either the Balancing Authority, Transmission Operator, or Reliability Coordinator?

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

There should also be some allowance for processes or procedures to mitigate constraints that allow a generating owner or operator to not install or implement protection measures in areas where historically they have not been needed. For instance water can freeze in a cooling tower basin but the process requires constant circulation of water or constant flow of water in the basn as the mitigating option. As we read the standard we would be required to put heaters or enclosures on the cooling tower basin to eliminate all possible chance of water to freeze within the basin. However this would be unrealistic and would not allow the cooling tower basin, pumps, etc to work as intended.

Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

We appreciate the effort that the SDT put into drafting the objective Generator Cold Weather Constraint criteria as directed by FERC. However, it is our opinion that the proposed definition still contains a bit of ambiguity that needs to be addressed.

Consider the proposed definition of a Technical Constraint. The last sentence states: "Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES." How is the GO to know how long a technology must be "demonstrated" in order for the timeframe to be considered "sufficient"?

Lastly, while the definition of Commercial Constraint is not ambiguous, it does set a very high bar. We appreciate that this is a difficult term to clearly define; however, under the currently proposed definition, the GO could potentially incur a significant financial impact without reaching the threshold that would preclude the generating unit from operating.	
Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
The Generator Cold Weather Constraint(s) definition references Generator Cold Weather Components. Should the reference be Generator Cold Weather Critical Components as that is a defined term?	

Likes 0	
Dislikes 0	

Response

James Keele - Entergy - 3

Answer	Yes
Document Name	

Comment

Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	Yes
Document Name	

Comment

OPG agrees with NPCC/RSC's comments.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	Yes
Document Name	

Comment

WEC Energy Group supports EEIs comments.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

Southern Company agrees with the proposed definition of Generator Cold Weather Constraint.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	Yes
Document Name	

Comment

None.

Likes 0	
Dislikes 0	

Response

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS supports the proposed definition Generator Cold Weather Constraint.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM supports the proposed definition of Generator Cold Weather Constraint.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes

Document Name

Comment

Constellation agrees that individual Constraint wording adds clarity. Suggest changing introductory wording to add "one or more" constraints, i.e., "... must fall under one or more of..."

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation agrees that individual Constraint wording adds clarity. Suggest changing introductory wording to add "one or more" constraints, i.e., "... must fall under one or more of..."

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

Daniel Herring - DTE Energy - Detroit Edison Company - 3

Answer	Yes
Document Name	

Comment

Likes 0

Dislikes 0

Response

Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lovita Griffin - Austin Energy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Imane Mrini - Austin Energy - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	
Xcel Energy believes that improvements to the Generator Cold Weather Constraint definition should be made to provide additional clarity. Please refer to EEI comments in response to question 9 of the comment form.	

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	
Document Name	

Comment

Texas RE recommends using the proposed term “Generator Cold Weather *Critical* Component” in the definition to ensure clarity and consistency.

Texas RE is concerned the Technical Constraint description could include any current unit needing updates to run reliably. “New technologies” is not defined and subject to interpretation. The description also does not specify what a “sufficient period of time” is.

Texas RE is concerned the proposed ‘Commercial Constraint’ definition is subject interpretation and could lead to difficulties assessing compliance. Clarification is needed in the phrase “at the time of the evaluation”. It is not clear whether this includes the timeframe picked by the entity to implement the freeze protection plans or indicates that the entities will evaluate whether it is economical for the entities to implement the freeze protection measures to operate at the time of Extreme Cold Weather Temperature conditions. Texas RE recommends the drafting team consider the evidence required to demonstrate a Commercial Constraint.

Likes 0	
Dislikes 0	

Response

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

2. Do you agree that the proposed Requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data per Key Recommendation 1c? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

This is simply requiring us to perform a wind chill calculation with an ambiguous 20mph wind speed. Why are we not basing this on the calculations we have available from the ASOS or NWS data that we have already had to complie under EOP 012-1? Some regions or facilities are more protected from wind effects than others, and there is no direct correlation between extreme cold weather tempeartures and wind. So why are we trying to model something that has no technical basis?

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

We agree that “concurrent wind speed and precipitation” language has been incorporated into Requirement R1, Part 1.2.2. Less clear is to whom this information will be provided, and how it will be used by the recipient(s). Some generating technologies / plant designs may be more susceptible to the effects of wind and precipitation than others, but all will be required to address it? The technical rationale document states that “…if the historical minimum temperature occurred at low wind and dry conditions, and actual cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources” or that “…if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature”. What “planning personnel” are being referred to, and is there a corresponding requirement to provide this information to the planning personnel?

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those suppied by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	No

Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The SRC agrees that the language in proposed Requirement R1 requires GOs to gather historical data regarding precipitation and wind speed, if available. However, it is unclear how this data is to be used beyond being included in the cold weather preparedness plan under Requirement R4. The SRC recommends that Requirement R4, Part 4.4 be revised to make the implementation of measures to address the effects of precipitation and the cooling effect of the wind mandatory if the data is available, rather than permissive. In addition, the SRC recommends that Requirement R1 be revised to require GOs to gather wind speed and precipitation data at their generating unit locations for use in future analysis if the data is not already being collected by the GO or by a third party from which the GO can procure the data.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
While we agree that the effects of wind and precipitation play an important role in the performance of wind or solar generation during cold weather, these effects are already baked into the capacity factors submitted to the BAs. Additionally, the BAs should have the necessary requirements to perform imminent winter storm impact analysis based on their wide-area situational awareness with the mix of generation types they have in their areas.	
Likes 0	
Dislikes 0	
Response	

Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
Enel North America Inc. supports the NAGF’s comments and suggests the SDT consider their recommendations.	
Likes 0	
Dislikes 0	
Response	

David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren agrees with and supports NAGF comments on this question.	
Likes 0	
Dislikes 0	
Response	

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF does not agree that the proposed Requirement R1 accounts for the effects of precipitation and wind. In R1, the only place wind and precipitation are mentioned is under 1.2.2, which is focused on design information, actual operating information and under an engineering analysis. R1.2.2 does not account for the wind and precipitation, it only includes what occurred historically or at a single point in the design criteria. These issues are also concerning when paired with what the standard seems to mean by the term freezing. It appears that the SDT means to include three separate issues within the undefined term “freezing” which makes the full extent of the requirements unclear without properly defining what is expected. As currently understood, it appears that the SDT is including actual freezing (water turning to ice), malfunctions cause by fluids becoming too viscous (technically this is congealing, not freezing, but it’s functionally equivalent) and accretion/accumulation of moisture (such as blade icing on a wind turbine, snow accumulation on solar panels or ice accumulating on the air inlets of a gas turbine) which is not a form of freezing. If this is the intent, the SDT needs to define the term “freezing” so that all parties are clear on what is covered in the standard.	

The multiple possible impacts of a winter storm cannot be combined into a single point. Impacts will vary greatly based on the mix of temperature, wind speed or precipitation rate. We also point out that wind turbines blades are much more likely to ice when the temperature is near freezing and precipitation occurs rather than at much lower temperatures.

As wind speeds increase the heat transfer rises, although not at a linear rate. So, a unit designed to operate at zero degrees with a 20 mile an hour wind might fail at five degrees with a 40 mile an hour wind. But the proposed standard looks at a CAP based solely on dry bulb temperature at the time of a freezing event. If a unit is designed to zero degrees and a 20-mph wind speed and it fails at 5 degrees with the 40-mph wind speed, what is the CAP expectation? Why would a Generator Owner do anything beyond identifying that the conditions exceeded the design capability of the unit?

To address this issue in a meaningful manner, we propose that NERC consider focusing on having generator units to identify their proven capabilities (by design, experience or analysis) regarding (a) DBT, (b) DBT/wind combination, and (c) precipitation. This would provide the BAs with the ability to know what to expect for the forecasted weather and not be surprised when generation fails because the weather is beyond the one of the capabilities identified. Until that level of understanding and expectations are understood, the BAs will continue to claim the issues are all caused by generation because the BA did not know something was wrong.

To compliment this change, we propose that the SDT modify the definition of Generator Cold Weather Reliability Event accordingly.

In summary, the current proposal does not allow for an entity to meet a design criteria because the SDT has focused solely on temperature. Precipitation should stand separate from temperature/wind. None of the loss-of-firm-load incidents that gave rise to EOP-012 were caused by precipitation*; they all involved extreme cold combined with high winds.

* Winter Storm Uri began with an ice storm that took out the wind turbines of northern Texas, but the fossil fleet ramped-up and there was no problem. Blackouts did not occur until the weather later became very cold and breezy.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC comments.

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	No
Document Name	

Comment

NV Energy does not agree that the proposed requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data as per Key Recommendation 1c.

1.2.2 requires a GO to identify generating unit minimum temperature by 1 of three methods. Two of these methods only require providing data on concurrent wind speed and precipitation if available, and the third method requires a concurrent wind speed and precipitation to be considered but does not specify to what extent wind speed and precipitation must be considered. This approach does not account for effects of precipitation and the accelerated cooling effect of wind, it merely requires a point in time observation. For example, if a plant had an observed minimum “Historical operating temperature” of 0°F with a concurrent wind speed of 5mph, this would be the reported condition, regardless of if 2 hours prior there was a 10-hour period of time with a temperature of 3°F with a concurrent wind speed of 20mph. The secondary scenario would most certainly have a greater rate of heat loss and high risk of reliability impacts due to extreme cold weather; however, the first scenario is what would be required to be recorded per 1.2.2. This failure to account for the impacts of heat loss due to wind and/or precipitation could have real and negative impacts to the reliability of the Bulk Electric System as Balancing Authorities will have incomplete data regarding the Capability and Availability of generating units across the spectrum of operating conditions that could be parameterized by accounting for the heat loss (or cooling effect) experienced by a plant due to the combination of wind, precipitation, and temperature.

Likes 0	
Dislikes 0	

Response

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	No
Document Name	

Comment

Properly identifying capability and unit min operating temperature is dependent not only on temperature but various wind speeds and precipitation. This information is not readily available for older existing generators and varies over different conditions. It will be difficult to provide accurate information to the BAs based on a single point. Currently the standard only looks at dry bulb temperature for determining the ECWT, associated critical components, and associated protection to cover these components. There is a gap in expectations and understanding how these parameters are used either with or in lieu of ECWT in the standard. This language unfortunately creates confusion regarding how and when it is applied. The standard needs to better express how these parameters are related, when each is used (in a CAP or as an initial declaration to the RC/BA), and how compliance will be measured.

Likes 0	
Dislikes 0	

Response

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	No
Document Name	

Comment

Properly identifying capability and unit min operating temperature is dependent not only on temperature but various wind speeds and precipitation. This information is not readily available for older existing generators and varies over different conditions. It will be difficult to provide accurate information to the BAs based on a single point. Currently the standard only looks at dry bulb temperature for determining the ECWT, associated critical components, and associated protection to cover these components. There is a gap in expectations and understanding how these parameters are used either with or in lieu of ECWT in the standard. T his language unfortunately creates confusion regarding how and when it is applied. The standard needs to better express how these parameters are related, when each is used (in a CAP or as an initial declaration to the RC/BA), and how compliance will be measured.

Likes 0	
Dislikes 0	

Response

Imane Mrini - Austin Energy - 6

Answer	No
Document Name	

Comment

Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous"

Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation; or

Likes 0	
Dislikes 0	

Response

Tony Hua - Austin Energy - 4

Answer	No
Document Name	
Comment	
Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous" Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation;	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	
Lovita Griffin - Austin Energy - 3	
Answer	No
Document Name	
Comment	
Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous" • Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation; or	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	
Michael Dillard - Austin Energy - 5	
Answer	No
Document Name	
Comment	
Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous": Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation;	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	

Daniel Roethemeyer - Vistra Energy - 5

Answer	No
Document Name	

Comment

We agree with the NAGF comments

Likes 0	
Dislikes 0	

Response

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	No
Document Name	

Comment

Weather records for many locations will not have data sufficient to consider these factors, as such during audits entities will somehow have to show that data wasn't available and justify why this information is not included.

Likes 0	
Dislikes 0	

Response

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	No
Document Name	

Comment

MRO NSRF does not agree that the proposed requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data as per Key Recommendation 1c.

1.2.2 requires a GO to identify generating unit minimum temperature by 1 of three methods. Two of these methods only require providing data on concurrent wind speed and precipitation if available, and the third method requires a concurrent wind speed and precipitation to be considered but does not specify to what extent wind speed and precipitation must be considered. This approach does not account for effects of precipitation and the accelerated cooling effect of wind, it merely requires a point in time observation. For example, if a plant had an observed minimum “Historical operating temperature” of 0°F with a concurrent wind speed of 5mph, this would be the reported condition, regardless of if 2 hours prior there was a 10-hour period of time with a temperature of 3°F with a concurrent wind speed of 20mph. The secondary scenario would most certainly have a greater rate of heat loss and high risk of reliability impacts due to extreme cold weather; however, the first scenario is what would be required to be recorded per

1.2.2. This failure to account for the impacts of heat loss due to wind and/or precipitation could have real and negative impacts to the reliability of the Bulk Electric System as Balancing Authorities will have incomplete data regarding the Capability and Availability of generating units across the spectrum of operating conditions that could be parameterized by accounting for the heat loss (or cooling effect) experienced by a plant due to the combination of wind, precipitation, and temperature.	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	No
Document Name	
Comment	
Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous" Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation; or	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	

Comment	
R1.2.2 Bullet 3 – Add “if available”; strike “which includes”: Current cold weather performance temperature determined by an engineering analysis, “if available”, " " concurrent wind speed and precipitation. Suggest changes due to the availability of data.	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
This is simply requiring us to perform a wind chill calculation, with an ambiguous 20mph wind speed. Why are we not basing this on the calculations we have available from the ASOS or NWS data that we have already had to complie under EOP 012-1. Some regions or facilities are more protected from wind effects than others, and there is no direct correlation between extreme cold weather tempeartures and wind so why are we trying to model something that has no technical basis.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree. Reclamation Hydro generators are not designed by taking into account concurrent wind speed and precipitation as they are protected internally to a physical structure and do not have environmental constraints. The amount of precipitation or wind speed has no effect on these units and should be removed from this standard. Also, depending on the unforeseen combination of wind, precipitation and temperature, it is impossible to predict variants in each from one hour to the next.	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	

Answer	No
Document Name	

Comment

In R1, the only place wind and precipitation are mentioned is under 1.2.2 (design information, actual operating information and engineering analysis), and as concurrent data for a worst-case temperature. It does not follow that references to “freezing” in the standard include three different phenomena: actual freezing (water turning to ice), malfunctions cause by fluids becoming too viscous (technically this is congealing, not freezing, but it’s functionally equivalent) and accretion/accumulation of moisture (such as blade icing on a wind turbine, snow accumulation on solar panels or ice accumulating on the air inlets of a gas turbine) which is not a form of freezing. If this is the intent, the SDT needs to define the term “freezing” so that all parties are clear on what is covered in the standard.

Such a wide-ranging definition would be a mistake, however. The effect of low temperature and wind in causing freezing or congealing stands separate from precipitation-related problems. The ice storms that knock wind turbines offline occur near 32 F, for example, and have nothing to do with ability to operate at the ECWT. None of the loss-of-firm-load incidents that gave rise to EOP-012 was caused by precipitation*; they all involved extreme cold combined with high winds. Precipitation-related obligations in EOP-012 should be of a solely informative nature, not prescriptive.

* Winter Storm Uri began with an ice storm that took out the wind turbines of northern Texas, but the fossil fleet ramped-up to cover the losses and there was no problem. Blackouts did not occur until the weather later became very cold and breezy.

NERC should focus on getting existing plants to identify their proven capabilities for existing units (by design, experience or analysis) regarding (a) DBT, (b) DBT/wind combination, and (c) precipitation. BAs would then know what to expect for the forecasted weather and not be surprised when generation fails because the weather is beyond the one of the capabilities identified.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

This is simply requiring us to perform a wind chill calculation, with an ambiguous 20mph wind speed. Why are we not basing this on the calculations we have available from the ASOS or NWS data that we have already had to complie under EOP 012-1. Some regions or facilities are more protected from wind effects than others, and there is no direct correlation between extreme cold weather tempeartures and wind so why are we trying to model something that has no technical basis.

Likes 0	
Dislikes 0	

Response

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
Tacoma Power recommends editing the third bullet in R1.2.2 to make it clear that the engineering analysis is not looking at concurrent wind speed and precipitation from historical operating temperature data (see proposed mark-up below). Instead, the engineering analysis is considering performance limitations imposed by concurrent wind speed and precipitation. R1.2.2, third bullet: *Current cold weather performance temperature determined by an engineering analysis, which includes* ***limitations*** *on concurrent wind speed and precipitation.*	
Likes 1	Platte River Power Authority, 3, Kiess Richard
Dislikes 0	
Response	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
SIGE recommends adding “Calendar” before the words “Year” and “Month” – similar to PRC-005 language.	
Likes 0	
Dislikes 0	
Response	

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
It is suggested that “and engineering analysis, operating data or design information” in M1 be changed to “and design information, operating data or engineering analysis” to be consistent with the sequence in R1.2.2.	
Likes 0	
Dislikes 0	
Response	

Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation agrees, wording provides sufficient flexibility to allow context for minimum temperature conditions so that wind and precipitation conditions different than historical can be used in planning for actual future events. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	

Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation agrees, wording provides sufficient flexibility to allow context for minimum temperature conditions so that wind and precipitation conditions different than historical can be used in planning for actual future events. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM agrees that the language in proposed Requirement R1 aligns with Key Recommendation 1c.	
Likes 0	
Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees the proposed language in R1 accounts for Recommendation 1c.	
Likes 0	
Dislikes 0	

Response

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin

Answer	Yes
Document Name	

Comment

ITC supports EEI's comments.

Likes 0

Dislikes 0

Response

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0

Dislikes 0

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

Southern Company supports the EEI Comments that the proposed language in R1 aligns with Key Recommendation 1c.

Likes 0

Dislikes 0

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	

Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
Recommend adding the word “calendar” to Requirement R1 so it reads: “At least once every five calendar years ….”. This would provide clarity on the bookends of the task and aligns with the approach used in other standards such as PRC-002-2 R5.4.	
Likes 0	
Dislikes 0	
Response	

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Regarding the second bullet in Requirement Part 1.2, Texas RE recommends including a provision for documenting the reason(s) why concurrent wind speed and precipitation are not available.	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	

Xcel Energy believes that improvements to the proposed Requirement R1 language should be made to provide additional clarity. Please refer to EEI comments in response to question 9 of the comment form.

Likes 0

Dislikes 0

Response

3. Do you agree that the proposed date of October 1, 2027 is an appropriate time frame for units that enter commercial operation after this date to implement the enhanced cold weather requirements that are contained within Requirement R2? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Daniel Herring - DTE Energy - Detroit Edison Company - 3

Answer	No
Document Name	

Comment

Comments: This date should be determined as part of the Implementation Plan upon the standard being approved and effective as opposed to a fixed date. For example, number of months after effective date.

Likes 1	Luminant - Luminant Energy, 6, Ferrell Russell
Dislikes 0	

Response

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Tacoma Power does not agree that October 1, 2027 is an appropriate time frame. This time frame could significantly delay or increase costs for new projects currently planned or underway. Tacoma Power recommends deleting “commercial operation” and replacing with “units built after this date”.

Likes 0	
Dislikes 0	

Response

Richard Jackson - U.S. Bureau of Reclamation - 1

Answer	No
Document Name	

Comment

Reclamation does not agree, as it is not defined whether new or existing units are required to meet R2 to enter commercial operation. Recommend that Commercial Operation be capitalized as defined in the Glossary of Terms.

Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
no.	
Likes 0	
Dislikes 0	
Response	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
The drafting team has not shown sufficient technical basis for the implementation for October 1, 2027	
Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	No
Document Name	
Comment	
Buckeye supports the comments of ACES: Design decisions for new generating units and/or facilities are made well in advance of the start of construction. In many cases, design decisions are made years in advance. Under the currently proposed language in R2.1.3, the GO must install freeze protection measures that provide the ability to operate for 12 continuous hours at the unit(s) Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed on any	

exposed Generator Cold Weather Critical Components. This requirement will likely cause the GO to either make significant design changes to comply with this requirement. In short, the GO will need to either install additional freeze protection measures or to build enclosures to house any critical components. This requirement will cause the GO to either incur significant additional design and/or construction costs or to expedite the schedule(s) for any in progress project(s). We recommend a five (5) year phased compliance approach for Requirement R2. Using the current compliance date for EOP-012-1, the new recommended date is October 1, 2029.

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC comments that R2 and R3 should be combined to include all units and by doing so would result in a more reliable and performant BES during extreme cold weather conditions.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC signed on to ACES comments:

Design decisions for new generating units and/or facilities are made well in advance of the start of construction. In many cases, design decisions are made years in advance. Under the currently proposed language in R2.1.3, the GO must install freeze protection measures that provide the ability to operate for 12 continuous hours at the unit(s) Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components. This requirement will likely cause the GO to either make significant design changes to comply with this requirement. In short, the GO will need to either install additional freeze protection measures or to build enclosures to house any critical components. This requirement will cause the GO to either incur significant additional design and/or construction costs or to expedite the schedule(s) for any in progress project(s). We recommend a five (5) year phased compliance approach for Requirement R2. Using the current compliance date for EOP-012-1, the new recommended date is October 1, 2029.

Likes 0	
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

The proposed date of October 1, 2027 is based on the effective date of October 1, 2024. For those jurisdictions where regulatory approval is required, the Standard effective date may be later than October 1, 2027. It is suggested to change “October 1, 2027” to “36 months after the effective date of this Standard”.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC disagrees that the enhanced cold weather requirements that are contained within Requirement R2 should be limited to units that enter commercial operation after October 1, 2027. Requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units. The Generator Cold Weather Constraint declaration process and the Corrective Action Plan process within EOP-012 provide sufficient accommodation for existing units. Adopting the SRC’s proposal would require more thorough weatherization of generation units, resulting in a more reliable and performant BES during extreme cold weather conditions.

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

Contracts for new units are currently being issued with commercial operation dates after 10/1/2027. Also, some existing contracts for new units are being delayed past 10/1/27 due to manpower and equipment supply chain issues. These contracts do not neccesarly include all the cold weather requirements from this standard. Changing the contracts would at the minimum be expensive and, at the worst may not be possible. Therefore we suggest the date be pushed out to 10/1/30.

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

Given we are not in support of these changes as written, the proposed date needs to be reconsidered after further evaluation of the standard.

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

Design decisions for new generating units and/or facilities are made well in advance of the start of construction. In many cases, design decisions are made years in advance. Under the currently proposed language in R2.1.3, the GO must install freeze protection measures that provide the ability to operate for 12 continuous hours at the unit(s) Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components. This requirement will likely cause the GO to either make significant design changes to comply with this requirement. In short, the GO will need to either install additional freeze protection measures or to build enclosures to house any critical components. This requirement will cause the GO to either incur significant additional design and/or construction costs or to expedite the schedule(s) for any in progress project(s). We recommend a five (5) year phased compliance approach for Requirement R2. Using the current compliance date for EOP-012-1, the new recommended date is October 1, 2029.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	
While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	

FirstEnergy does believe this is sufficent time.	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern Company Supports the EEI comments and agrees the proposed date of October 1, 2027 is an appropriate timeframe.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	Yes
Document Name	

Comment

PGAE agrees and supports the NAGF comments.

Likes 0	
Dislikes 0	

Response

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	Yes
Document Name	

Comment

MRO NSRF agrees that the proposed date of October 1, 2027, is appropriate.

Likes 0	
Dislikes 0	

Response

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Daniel Roethemeyer - Vistra Energy - 5

Answer	Yes
Document Name	

Comment

We agree with the NAGF comments

Likes 0

Dislikes 0

Response

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	Yes
Document Name	

Comment

While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.

Likes 0

Dislikes 0

Response

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	Yes
Document Name	

Comment

While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.

Likes 0

Dislikes 0

Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees with the proposed date of October 1, 2027 as an appropriate timeframe.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy agrees that the proposed date of October 1, 2027, is appropriate.	
Likes 0	
Dislikes 0	
Response	

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM supports the proposed date of October 1, 2027.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	Yes
Document Name	

Comment

While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	Yes
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	

Response

Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten

Answer	Yes
Document Name	

Comment

Xcel Energy agrees with the timeline identified in R2. We also support comments offered by EEI in response to question 9 of the comment form.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	Yes
Document Name	
Comment	
AES CE supports the proposed date.	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
SIGE supports the proposed date of October 1, 2027 in R2.	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Lindsey Mannion - ReliabilityFirst - 10

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Diana Torres - Imperial Irrigation District - 6

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

4. The SDT structured R2.1 and R2.2 in the vein of an if/then statement. The intent being, if a GO implements R2.1, then they would be compliant with Requirement R2. If a GO does not implement R2.1 but implements R2.2, then they would be compliant with Requirement R2. Stated differently, a GO would only risk non-compliance with Requirement R2 if they did neither R2.1 nor R2.2. Does the proposed language, as drafted by the SDT, provide that clarity and reflect the SDT's intent as stated above? If not, please provide suggested clarifying language.

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

This 'and/or' or 'if/then' option is not implied in the standard as currently drafted. Additional clarity would be beneficial.

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

We suggest adding additional clarification to the end of Requirement R2 so that it states, "…*required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), shall* ***meet either Part 2.1 or Part 2.2 below****:*".

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	

Comment

Black Hills Corporation agrees and supports NAGF comments.

Likes 0	

Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC believes that Requirement R2 would more clearly reflect the SDT’s intent that a GO that has not implemented Part 2.1 can achieve compliance with Requirement R2 by implementing Part 2.2 if Part 2.2 were revised to read as follows: “Each Generator Owner that does not have freeze protection measures as required by Requirement R2 Part 2.1 **may comply with this requirement by developing and implementing** a Corrective Action Plan.”

Likes 0	
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

It is better to state clearly in R2 that only R 2.1 or R 2.2 is required.

It is not clear if freeze protection measures are required when Generator Cold Weather Critical Components are inside the heated powerhouse at units’ Extreme Cold Weather Temperature.

It is suggested that R 2.1 be changed to:

2.1 Have freeze protection measures to protect Generator Cold Weather Critical

Components that provide the capability to operate at the unit(s)’ Extreme Cold Weather Temperature:

2.1.1 For (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; and

2.1.2 With a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components.

It is suggested that the first sentence of M2 be changed to:

Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with Requirement R2.1, or it has developed a Corrective Action Plan for the identified issues in accordance with Requirement R2.2.

Likes 0	
Dislikes 0	

Response

Tracy MacNicoll - Utility Services, Inc. - 4

Answer	No
Document Name	

Comment

The way 2.1 is currently written, you have to satisfy 2.1. Recommend adding language similar to the bullet point in R1 of PRC-024-3.

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	No
Document Name	

Comment

Enel North America Inc. does not believe Requirement R2 provides the intent of an if/then statement as currently written. Enel suggests following the MRO NSRF recommendation of following the either/or method utilized in PRC-002 R12 to accomplish the intent of the SDT.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF notes that R2.1 deals solely with dry bulb temperature and wind, leaving “freezing” in the form of precipitation-related vulnerabilities unaddressed and therefore causing confusion when compared to the intermingled concept of “freezing” currently used by the standard. Precipitation should be handled separately from freezing, and only in an informative (not prescriptive) manner. There are snow-*resistant* inlet air filters, and many are experimenting with accretion-*resistant* wind turbine blades, but one ultimately is dealing with degrees of risk and not certainties. This is especially the case when considering the many variabilities involved (dry fluffy snow vs heavy wet snow, snowstorm vs ice storm, 12” of snow at 1 in/hr for 12 hours versus 4 hours at 3 in/hr, wind from the east or from the west etc.).	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	
Minnesota Power supports the North American Generator Forum’s (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	No
Document Name	
Comment	

PNM recommends including “**or**” for R2.1 or R2.2 that demonstrates compliance if either R2.1 or R2.2 is completed, similar to PRC-002-2 R12.	
Likes 0	
Dislikes 0	
Response	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE supports the SRC comments.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy agrees with the stated intent of R2. However, NV Energy does not agree that the proposed if/then method that the SDT attempted to implement in R2 is capable of accomplishing this intent. As currently written, there is no language that removes the obligation of compliance with R2.1 while developing a CAP as required by R2.2. NV Energy suggests that the SDT review PRC-002 R12. PRC-002-2 R12 utilizes an either/or approach regarding EITHER meeting a certain required capability OR developing a CAP to allow for meeting of the required capability.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	

NRG doesn’t have a concern with the if/then scenario. However, under R2.1, the identified critical components are required to have appropriate freeze protection measures to protect to the ECWT (a single point of dry bulb temp). However, this requirements adds a 20 mph requirement which can be confusing. As stated above clarification should be made to better declare when these additional parameters should be considered.

Likes 0	
Dislikes 0	

Response

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	No
Document Name	

Comment

NRG doesn’t have a concern with the if/then scenario. However, under R2.1, the identified critical components are required to have appropriate freeze protection measures to protect to the ECWT (a single point of dry bulb temp). However, this requirements adds a 20 mph requirement which can be confusing. As stated above clarification should be made to better declare when these additional parameters should be considered.

Likes 0	
Dislikes 0	

Response

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC

Answer	No
Document Name	

Comment

SMUD and BANC agree with the comments submitted by the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Lovita Griffin - Austin Energy - 3

Answer	No

Document Name	
Comment	
Austin Energy comments on R2.1.3 This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 0	
Dislikes 0	
Response	
Tony Hua - Austin Energy - 4	
Answer	No
Document Name	
Comment	
Austin Energy comments on R2.1.3 This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	
Imane Mrini - Austin Energy - 6	
Answer	No
Document Name	
Comment	
This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 0	
Dislikes 0	
Response	

Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
It is not strongly worded enough to provide assurance that this will be treated as an if-then statement by the Auditors.	
Likes 0	
Dislikes 0	
Response	

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	
MRO NSRF agrees with the stated intent of R2. However, MRO NSRF does not agree that the proposed if/then method that the SDT attempted to implement in R2 is capable of accomplishing this intent. As currently written, there is no language the removes the obligation of compliance with R2.1 while developing a CAP as required by R2.2. MRO NSRF suggests that the SDT review PRC-002 R12. PRC-002-2 R12 utilizes an either/or approach regarding EITHER meeting a certain required capability OR developing a CAP to allow for meeting of the required capability.	
Likes 0	
Dislikes 0	
Response	

Thomas Standifur - Austin Energy - 1	
Answer	No
Document Name	
Comment	
This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	
Comment	
Tri-State would like to recommend the following verbiage for R2: R2. Applicable to generating units with a commercial operation date or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated ExtremeCold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius)as determined in Requirement R1, and that self-commits or is required to operate ator below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),(1) shall have freeze protection measures as described in Part 2.1 or develop a Corrective Action Plan as described in Part 2.2.	
Likes 0	
Dislikes 0	
Response	

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	

Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

Modify R2 to add “shall perform R2.1 or R2.2” as follows:

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), “shall perform R2.1 or R2.2”: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

this and/or or if/then option is not implied in the standard as currently drafted. Additional clarity would be beneficial.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

R2.1 deals solely with dry bulb temperature and wind, leaving “freezing” in the form of precipitation-related vulnerabilities unaddressed and therefore causing confusion. Precipitation should be handled separately from freezing, and in only an informative (not prescriptive) manner, since one cannot obtain vendor guarantees in this respect. There are snow-*resistant* inlet air filters, and many are experimenting with accretion-*resistant* wind turbine blades, but one ultimately is dealing with degrees of risk and not certainties. This is especially the case when considering the many variabilities involved - dry fluffy snow vs heavy wet snow, snow storm vs ice storm, 12” of snow at 1 in/hr for 12 hours vs 4 hours at 3 in/hr, wind from the east or for the west etc.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

no, this and/or or if/then option is not implied in the standard as currently drafted. Additional clarity would be beneficial.

Likes 0	
Dislikes 0	

Response

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	No
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Scott McGough - Georgia System Operations Corporation - 3,4

Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx

Comment

Likes 0	

Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
While we believe the proposed language provides the intended clarity. We recommend using an "or" statement as in other requirements to further emphasize the intent. For an example, see the proposed language in R1.2.2.	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
SIGE agrees that the proposed language is sufficient to clarify the Standard Drafting Team's if/then intent.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
While AES CE agrees with the proposed language, we also want to caution that high wind and cold temperatures do not always equate to freezing. Precipitation also plays an important role in freezing.	
Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	Yes
Document Name	

Comment

AEPC signed on to ACES comments:

While we believe the proposed language is provides the intended clarity, we recommend using an "or" statement as in other requirements to further emphasize the intent. For an example, see the proposed language in R1.2.2.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation agrees the logic seems to work

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation agrees the logic seems to work

Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees with the intent of R2.1 and R2.2.	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
While the SDT’s intended relationship between R2 Part 2.1 and R2 Part 2.2 is clear, RF recommends one of the following additions to prevent misunderstanding or misapplication: • Before the R2 VRF and Time Horizon, replace “shall:” with “shall meet either Part 2.1 and the associated sub-Parts or Part 2.2:” OR • Begin Part 2.2 with “Unless developing a Corrective Action Plan, have freeze protection measures…”	
Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	

ITC supports EEI's comments.

Likes 0	
Dislikes 0	

Response

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

Southern Company agrees that the language in R2.1 and R2.2 align with the SDT’s intent.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	Yes
Document Name	

Comment

WEC Energy group supports EEIs comments.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	Yes
Document Name	

Comment

OPG agrees with NPCC/RSC's comments.

Likes 0	
Dislikes 0	

Response

Thomas Foltz - AEP - 5

Answer	Yes
Document Name	

Comment

AEP’s reply of “yes” to Question #4 is driven by our understanding that if an event takes place involving new generation, that an entity may develop a CAP and follow the associated process. Is our interpretation correct in this regard?

Likes 0	
Dislikes 0	

Response

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters

Answer	Yes
Document Name	

Comment

Requirement R7 allows for Generator Cold Weather Constraints. It’s conceivable that Requirement R2.2 may have a Corrective Action Plan that can’t be implemented under Requirement R7 due to Constraints. Would this scenario be considered compliant?	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	
Xcel Energy supports comments offered by EEI in response to question 9 of the comment form.	
Likes 0	
Dislikes 0	
Response	
Michael Dillard - Austin Energy - 5	
Answer	
Document Name	
Comment	
Austin Energy comments on R2.1.3: This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 0	
Dislikes 0	
Response	

5. The SDT proposes two timeframes, 24 months for addressing existing equipment or freeze protection and 48 months for implementing new equipment or freeze protection, for Corrective Action Plans in Requirement R7. Do you agree that the timeframes proposed are appropriate? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Tacoma Power is concerned with potential impacts of supply chain delays in meeting this timeframe. Flexibility should be allowed in the Requirement to account for these unexpected delays. Recent supply chain delays caused significant challenges for implementing CIP-012-1 and as a result, alternative protections needed to be developed in order to meet the effective date. Tacoma Power recommends adding a sub-Requirement that would allow entities to request additional time to be compliant if there's unforeseen delays. For example: "R.7.1.2.1 If unforeseen delays outside of the Entities' control arise, then Entities should report the delays and revised CAP date to ERO Enterprise."

Likes 0	
Dislikes 0	

Response

Thomas Foltz - AEP - 5

Answer	No
Document Name	

Comment

Question #5 includes the word "implementing" in regards to new protection measures, however, this word this is not used within R7 itself. AEP proposes that the wording for 7.1.1 & 7.1.2 be revised as follows, which we believe will provide the needed clarity.

7.1 Include a timetable for *implementing* the selected corrective action(s) that shall:

7.1.1 Be completed within 24 months *of CAP development* if the corrective actions involve existing freeze protecting measures/equipment

7.1.2 Be completed within 48 months *of CAP development* if the corrective actions involve new freeze protecting measures/equipment.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

It is impossible to fully understand what it is that a Generator Owner is being asked to do at this time, due to the issues discussed above. If the SDT can provide better guidance or clearer requirements, then the time horizons can be better understood.

Additionally, since a GO may have to address hundreds of wind turbine, thousands of solar panels or a large number of conventional units, it is impossible to say how long it will take to fund modifications, find resources to perform the work, and schedule outages with the BAs to allow work to be completed.

While the proposed time limits have been used by NERC in standards, specifically TPL-007, we note that TPL-007 requires a CAP only for a single unit, not a fleet of units, in addition to being very limited in the scope rather than open to any possible cause of a trip, derate or failure to start. Due to this significant difference, a limited time frame in the style of TPL-007 is impractical, despite the fact that FERC pointed to TPL-007. A CAP addressing an entire fleet may require a certain period of time for planning and design work, then a rolling effort to modify units one by one – say half a year to retrofit one unit, two years for four, and four years for eight.

Likes 0	
Dislikes 0	

Response

Richard Jackson - U.S. Bureau of Reclamation - 1

Answer	No
Document Name	

Comment

Reclamation does not agree. Addressing existing equipment upgrades as well as Implementation of new equipment are time and cost burden actions that can vary based on funding, equipment availability, manpower, industry limitations and other unforeseen items. Recommend 36 months for existing and 60 months for new equipment.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	No
Document Name	

Comment

WEC Energy Group supports the NAGFs comments.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	No
Document Name	

Comment

PGAE agrees and supports the NAGF comments.

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer	No
Document Name	

Comment

What is considered new eqiupment per 7.1? Would this be brand new equipment for the facility or a new piece of equipment for the CAP in 7.1?

Likes 0	
Dislikes 0	

Response

Abbas Munir - Bruce Power - 5 - NPCC

Answer	No
Document Name	

Comment

This time frame may not be sufficient to address freeze protection measures for a multi-unit generator facilities hence there should be a provision for MP to work with the balancing authority to develop and agree on a schedule for corrective action implementation.	
Likes 0	
Dislikes 0	
Response	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
Smaller entities that have multiple projects need to go through a buget process and need time to implement corrections throughout their fleet. Smaller entites will find this a significant burden.	
Likes 0	
Dislikes 0	
Response	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	

ISO-NE supports the SRC comments and recommends adding language to R7.1.1 and 7.1.2 that provides a timeline for CAP completion. ISO-NE proposes 12 months from CAP development with an allowance of 24 months if the installation of new freeze protection equipment is required.

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC

Answer	No
Document Name	

Comment

PNM recommends a clarifying statement for the timeline related to new freeze protection on existing equipment. Is the intent to have the timeline in this scenario be 24 months or 48 months. PNM would support a 48 month timeline for all new freeze protection measures on existing equipment.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

The NAGF supports the desire to have separate deadlines for repairs and new implementation. However, the NAGF has concerns about the proposed time limits as follows:

a. For the reasons stated above related to wind and precipitation, the NAGF believes it is impossible to fully understand what it is that a Generator Owner is being asked to do at this time based on the language in the standard. If the SDT can provide better guidance or clearer requirements, then the time horizons can be better understood.

b. Additionally, since the CAP may have to address anywhere from 1 to 1000 wind turbines, solar panels or a large number of individual thermal units, it is impossible to say how long it will take to fund modifications, find resources to perform the work, and schedule outages with the BAs to allow work to be completed, all while attempting to complete ongoing maintenance to allow generators to run.

c. While these time limits have been used by NERC in previous standards, specifically TPL-007, we note that TPL-007 requires a CAP only for a single unit, not a fleet of units in addition to being very limited in the scope of the issue to be covered rather than open to any possible cause of a trip, derate or failure to start. Therefore, the scope of a CAP under TPL-007 is very limited while the scope of the CAPs envisioned under EOP-012 will vary greatly as the CAP is not limited to a single unit or even a single plant. Due to this significant difference, a hard time frame is unacceptable. Either the scope of the CAP must be limited to a single unit (similar to TPL-007), or at most a single plant, or the time period to complete the CAP needs to be modified to allow an amount of time per unit identified, instead of a time limit for the entire CAP.

d. While we understand that NERC and FERC have determined that addressing cold weather is a high priority, if Generator Owners are unable to either afford or complete required maintenance because cold weather issues take priority, then the generators will likely have forced outages before the units experience cold weather-related outages.

For these reasons, the NAGF asks that the SDT goes back and looks at the FERC order related to EOP-012 in a more reasonable manner. While we understand that FERC pointed to TPL-007, that does not mean TPL-007 provides a reasonable framework for EOP-012. While we do not believe a CAP should have 4 years for each unit identified, it would not be unreasonable for an additional year or two to be included in the CAP for each unit identified. As an example, assuming an additional year per unit is determined reasonable, when the Generator Owner identifies two units that have a similar vulnerability, then the CAP would have three years or five years, depending on the type of issue.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	
Comment	
AES CE supports NAGF’s comments in regards to this question. While AES CE appreciates the SDT’s proposed timeline to address existing equipment and new equipment, the issue at hand is the concern of the inability to complete the Corrective Action Plan due to labor resources as well as equipment availability. Additionally, outages that need to be taken within the proposed timeline may create constraints in operations and impact reliability as well. So, 24 months and 48 months may not be sufficient to address what needs to be implemented for the CAP that will be developed.	
Likes 0	
Dislikes 0	
Response	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	No
Document Name	
Comment	
The 24 months specified by this plan is only sufficient if it is not concurrent with the time period specified by the Implementation Plan but is in addition to those times.	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
For the reasons discussed in its response to question 9, the SRC believes these timeframes should be 12 months and 24 months, respectively, rather than 24 months and 48 months.	
Likes 0	
Dislikes 0	
Response	

Claudine Bates - Black Hills Corporation - 6

Answer	No
Document Name	

Comment

Black Hills Corporation (BHC) is concerned with the impact supply chain delays could have in meeting this time frame. BHC suggests adding a sub-requirement to allow entities to request additional time for compliance if unforeseen delays affect them.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation (BHC) is concerned with the impact supply chain delays could have in meeting this time frame. BHC suggests adding a sub-requirement to allow entities to request additional time for compliance if unforeseen delays affect them.

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

Black Hills Corporation (BHC) is concerned with the impact supply chain delaiys could have in meeting this time frame. BHC sugests adding a sub-requirement to allow entities to request additional time for compliance if unforseen delays affect them.

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation (BHC) is concerned with the impact supply chain delays could have in meeting this time frame. BHC suggests adding a sub-requirement to allow entities to request additional time for compliance if unforeseen delays affect them.	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
Due to the nature of nuclear power plant operations, 24 months and up to 48 months is not enough time for planning, designing, and completing the work. There should be a caveat or exemption given for sites that cannot meet these timelines. It is unclear what “existing equipment” (in 7.1.1) and “new equipment” (in 7.1.2) means. We suggest deleting the words “equipment or” in both sub-parts so that they just address freeze protection measures.	
Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	

James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to provide the constraint declaration to the Balancing Authority and update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.	
Likes 0	
Dislikes 0	
Response	

Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
yes, this is better clarification than what was provided in EOP 12-1	
Likes 0	
Dislikes 0	
Response	

Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern Company supports the EEI comments that the timeframe proposed for Corrective Action Plans for R7 provide sufficient time to address freeze protection plans.	
Likes 0	
Dislikes 0	
Response	

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	Yes
Document Name	
Comment	
MRO NSRF agrees with the timelines proposed in R7 as the R7.3 already allows for the CAP to be updated as required, including timelines.	
Likes 0	
Dislikes 0	
Response	

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
NRG supports staggered implementation plan, however there should not always be atime limit on what is expected to be done. Multiple units at the same site requiring the same remediation at the same time may require additional time to address. Perhaps the time step should be based upon number of units. For the most part, time frames appear reasonable from an implementation viewpoint. However, the Standard subrequirement language is not clear that completion of plan needs to be completed either in 24 or 48 month period. It implies that only need to "specifiy action" within that time frame. Recommend SDT provide better clarity its intent that this is the expected completion date.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
NRG supports staggered implementation plan, however there should not always be a time limit on what is expected to be done. Multiple units at the same site requiring the same remediation at the same time may require additional time to address. Perhaps the time step should be based upon number of units. For the most part, time frames appear reasonable from an implementation viewpoint. However, the Standard subrequirement language is not clear that completion of plan needs to be completed either in 24 or 48 month period. It implies that only need to "specifiy action" within that time frame. Recommend SDT provide better clarity its intent that this is the expected completion date.	

Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to provide the constraint declaration to the Balancing Authority and update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.	
Likes 0	
Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees that the timeframes proposed are appropriate.	

Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy agrees with the timelines proposed in R7 as the R7.3 already allows for the CAP to be updated as required, including timelines.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments	

Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	Yes
Document Name	
Comment	
Xcel Energy supports comments offered by EEI in response to question 9 of the comment form.	
Likes 0	
Dislikes 0	
Response	
Natalie Johnson - Enel Green Power - 5	
Answer	Yes
Document Name	
Comment	
Enel North America Inc. agrees with the 24- and 48-month proposed timeline for existing and new freeze protection respectively but proposes the SDT clarify the timeframe from “months” to “calendar months” to align with Scenario 2 of the approved *ERO Enterprise CMEP Practice Guide, Implementation of “Annual” and “Calendar Month(s)*” in the Reliability Standards.	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
SIGE supports the intent of R7 but recommends striking “equipment” from R7.1.1 and R7.1.2.	

Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Yes, this is better clarification than what was provided in EOP 12-1.	
Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response
Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	
Document Name	

Comment
Texas RE is concerned the timeframes leave the risk in place for longer than it needs to be. Texas RE requests the standard drafting team's reasoning for the 24 month and 48 month timeframes for completing a CAP.

Likes 0	
Dislikes 0	

Response

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

6. Do you agree that Requirement R8 is sufficient to inform the Balancing Authority of the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical or procedural justification.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

It is our opinion that only Requirement R8.1 and R8.2 are truly needed. TOP-003-5 R2 already requires the BA to include the operational limitations during local forecasted cold weather in its documented data specification. As the planning entity, the BA needs to know the operational parameters and capabilities of a GO's unit(s). If the BA determines that it also needs additional information (i.e. the Generator Cold Weather Constraint declaration), the BA already has the power to request this information via TOP-003-5. As written, the currently proposed Requirement R8.3 would subject the GO to double jeopardy if they do not provide the Generator Cold Weather Constraint declaration to the BA and the BA also includes this in its documented data specification.

Likes 0	
Dislikes 0	

Response

Mia Wilson - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC

Answer	No
Document Name	

Comment

SPP would like the SDT to consider removing the statement in requirement *8.3 Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority*.

SPP has concerns with the proposed statement and recommends removing the statement from R8. Given there is no requirement for the Balancing Authority to do anything with these documents, there is no apparent reliability benefit to the Generator Owner and Generator Operator providing constraint declarations to the Balancing Authority. This requirement is purely administrative.

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	
Comment	
The intent and basis for EOP 11-3 and EOP 12-1 as stated in the technical rationale for modifying EOP 11-2 was to separate the Balancing Authority requirements and the GO requirements. R8 brings the BA back into this standard which goes against the premise already set. We recommend this language requiring the BA to solicit GO data to remain in EOP 11-3 to keep the BA requirements out of EOP 12.	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
Requirement R8, Part 8.3 stipulates that the declaration be provided to the Balancing Authority “in the format and at the interval sprecified by the Balancing Authority”. However, there is no requirement for the BA to specify this and the standard doesn’t apply to the BA. If this requirement is to stay this way, section 4.1 needs to include the BA and a requirement needs to be added for the BA to provide the required format and intervals.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather generator performance for reliability.	
Likes 0	
Dislikes 0	
Response	

Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather genrator performance for relaibiltiy.	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather generator performance for reliability.	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather generator performance for reliability.	
Likes 0	
Dislikes 0	
Response	

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The SRC agrees that Requirement R8 is a helpful, albeit incomplete, method of informing the Balancing Authority of the nature and existence of a constraint declaration. However, Balancing Authorities would be better informed of the potential impacts of the constraint declaration if Requirement R8, Part 8.3 also required the provision of the operating limitations referenced in Requirement R8, Part 8.2. The SRC also recommends that Part 8.2 be revised to clarify that operating limitations should be updated at least annually, which would be consistent with Part 8.1. Finally, the SRC recommends that the drafting team consider expanding Part 8.3 to also require GOs to provide constraint-related information to Reliability Coordinators and Transmission Operators, as information regarding generator availability and operating limitations may inform analysis of thermal, voltage, and stability limits and any associated Operating Plans.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AES CE believes that R8.3 requires a corresponding requirement in TOP-003 to ensure that BA specifies the format and intervals required for the GO to submit Generator Cold Weather Constraint declarations to them. AES CE has had to struggle with various BAs with the current IRO-010-4 and TOP-003-5 in ensuring that the minimum temperature data (from EOP-011-2) is provided to the BA in the right format as requested. So, without a corresponding requirement in TOP-003 for the BA, R8.3 will not have any reliability impact that FERC wants to address.	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	No
Document Name	

Comment	
There needs to be a requirement of the Balancing Authority to establish the format and interval that the GO is required to adhere to.	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	
AEPC signed on to ACES comments: It is our opinion that only Requirement R8.1 and R8.2 are truly needed. TOP-003-5 R2 already requires the BA to include the operational limitations during local forecasted cold weather in its documented data specification. As the planning entity, the BA needs to know the operational parameters and capabilities of a GO's unit(s). If the BA determines that it also needs additional information (i.e. the Generator Cold Weather Constraint declaration), the BA already has the power to request this information via TOP-003-5. As written, the currently proposed Requirement R8.3 would subject the GO to double jeopardy if they do not provide the Generator Cold Weather Constraint declaration to the BA and the BA also includes this in its documented data specification.	
Likes 0	
Dislikes 0	
Response	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
Enel North America Inc. does not agree that R8.3 is effective. The Balancing Authority already has the ability to request this information from Generator Owners through Reliability Standard TOP-003. Keeping this data request in EOP-012 creates an administrative requirement instead of one that promotes reliability if the Balancing Authority does not have a plan to request or use the data. See 138 FERC ¶ 61,193, Paraph 81, Criterion B which addresses Reliability Standard requirements that are immaterial to reliability that are "administrative, data collection/data retention; documentation; reporting; periodic updates; commercial or business practice; and redundant," has led to multiple NERC projects and subsequent FERC approval retiring existing requirements that meet these criteria.	
Likes 0	

Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

The NAGF believes that Requirements 8.1 and 8.2 address providing unit limitations to the BA to address reliability and therefore fully address FERC’s concern raised in the order. Requirement 8.3 requires providing extraneous information, i.e. why and under what conditions a Generator Owner made a business decision. This information is not needed by the BA and can only be used to question decisions made by the Generator Owner, not address reliability.

The NAGF notes its concern that overloading entities with information extraneous to their needs makes it hard for the entity to find the pertinent data to allow for them to complete their responsibilities efficiently. Providing business decisions (which as structured may be a single sentence or a multi-page document that includes a root cause analysis, multiple quotes from vendors, etc.) to the Balancing Authority does not address reliability and instead is a documentation issue which has already been deemed immaterial to reliability (see paragraph 81 from the order in Docket RC11-6-000). Requirements 8.1 and 8.2 provides all necessary reliability information related to a declaration without providing information that is not pertinent to the Balancing Authority.

Instead of Requirement 8.3, NERC should have a reporting process for CAPs similar to what it uses for PRC-004. In this manner every CAP would be reported to NERC and these reports could be provided to FERC if FERC so desires. This would allow FERC to see what CAPs are not being completed and for what reason. If the issues are commercial in nature, then FERC can determine how best to address the lack of compensation as currently ordered in relation to this standard. The reports could also be provided to the Balancing Authorities of the reporting entities if the BA wishes to see them. In this manner, the questions related to business decisions would be kept out of a reliability compliance process while being made available to those that desire to evaluate the efforts being made by the Generator Owners.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE recommends modifying R8.3 to “Provide the Generator Cold Weather Constraint declaration and any updates annually to its **Planning Coordinator**.”

As currently written R8.3 looks like it is prescribing a requirement for the BAs to provide the GO with the format and interval for the Generator Cold Weather Constraint declaration. The BA is not an Applicable Function of EOP-012-2. TOP-003-2 R2 requires that BAs provide GOs with a data specification including data needed and the periodicity; however, this data is specific to the **Operations Planning Horizon** and **Real-time Monitoring**, while EOP-012-2 R8 is for the **Long Term Planning Horizon**. According to the NERC Reliability Functional Model Technical Document, Balancing Authority does not perform its actions in the **Long Term Planning Horizon**.

ISO-NE believes the appropriate function for the **Long-term Planning Horizon** would be the **Planning Coordinator** for this requirement.

In addition to the above comment, what was the justifications for the RC or TOP not receiving the constraint declaration since those entities perform Reliability Assessments, including assessments in the Long-term Planning Horizon?

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	No
Document Name	

Comment

NV Energy does not agree with the language proposed in R8.3. TOP-003 provides an avenue for the BA to make a request. Also, EOP-012-2 R8.1 already provides a periodicity. Therefore, the statement "... in the format and at the interval specified by the Balancing Authority" is not needed. NV Energy recommends removing 8.3 all together, as it is already sufficiently covered in TOP-003.

Likes 0	
Dislikes 0	

Response

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Buckeye supports the comments by ACES:

It is our opinion that only Requirement R8.1 and R8.2 are truly needed. TOP-003-5 R2 already requires the BA to include the operational limitations during local forecasted cold weather in its documented data specification. As the planning entity, the BA needs to know the operational parameters and capabilities of a GO's unit(s). If the BA determines that it also needs additional information (i.e. the Generator Cold Weather Constraint declaration), the BA already has the power to request this information via TOP-003-5. As written, the currently proposed Requirement R8.3 would subject the GO to double jeopardy if they do not provide the Generator Cold Weather Constraint declaration to the BA and the BA also includes this in its documented data specification.

Likes 0	
Dislikes 0	

Response

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC

Answer	No
Document Name	

Comment

SMUD and BANC agree with the comments submitted by the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Daniel Roethemeyer - Vistra Energy - 5

Answer	No
Document Name	

Comment

We agree with the NAGF comments

Likes 0	
Dislikes 0	

Response

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	No
Document Name	

Comment

The burden shoud be placed on the BA, much like any other data requests in other standards. This should not be part of this standard.

Likes 0	
Dislikes 0	

Response

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	No
Document Name	

Comment

MRO NSRF does not agree with the language proposed in R8.3. TOP-003 provides an avenue for the BA to make a request. Also, EOP-012-2 R8.1 already provides a periodicity. Therefore, the statement *"... in the format and at the interval specified by the Balancing Authority"* is not needed. MRO NSRF recommends removing 8.3 all together, as it is already sufficiently covered in TOP-003

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer	No
Document Name	

Comment

Tri-State would like to suggest that 8.3 coincide with the 8.1 annual timframe or when updates to the limitations are made under 8.2. 8.3 should have a 90 day schedule as well.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	No
Document Name	

Comment

PGAE agrees and supports the NAGF comments.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	No
Document Name	

Comment

WEC Energy Group supports the NAGFs comments.

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	
Comment	
The intent and basis for EOP 11-3 and EOP 12-1 as stated in the technical rational for modifying EOP 11-2 was to separate the Balancing Authority requirements and the GO requirements. R8 brings the BA back into this standard which goes against the premise already set. We recommend this language requiring the BA to solicit GO data to remain in EOP 11-3 to keep the BA requirements out of EOP 12.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Generator owners communicate this information directly with our Transmission Operators. If the GO is to communicate any constraints it must go through the TOP who is responsible for system load.	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
Parts 8.1 and 8.2 address providing unit limitations to the BA to address reliability. These address fully FERC's concern raised in the order. Part 8.3 requires providing extraneous information, i.e. why and under what conditions a Generator Owner made a business decision. This information is not needed by the BA and can only be used to question decisions made by the Generator Owner, not address reliability. As mentioned by FERC staff during one SDT call, there is concern that overloading entities with information extraneous to their needs makes it hard for the entity to find the pertinent data to allow for them to complete their responsibilities efficiently. Providing business decisions (which as structured may be a single sentence or a multi-page document that includes a root cause analysis, multiple quotes from vendors, etc.) to the Balancing Authority does not address reliability and instead is a documentation issue which has already been deemed immaterial to reliability (see paragraph 81 from the order in	

Docket RC11-6-000). Parts 8.1 and 8.2 provides all needed reliability information related to a declaration without providing information that is not pertinent to the Balancing Authority. Instead of Part 8.3, NERC should have a reporting process for CAPs similar to what it uses for PRC-004. In this manner every CAP would be reported to NERC and these reports could be provided to FERC if FERC so desires. This would allow FERC to see what CAPs are not being completed and for what reason. If the issues are commercial in nature, then FERC can determine how best to address the lack of compensation as currently ordered in relation to this standard. The reports could also be provided to the Balancing Authorities of the reporting entities if the BA wishes to see them. In this manner, the questions related to business decisions would be kept out of a reliability compliance process while being made available to those that desire to evaluate the efforts being made by the Generator Owners.

Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	
The intent and basis for EOP 11-3 and EOP 12-1 as stated in the technical rational for modifying EOP 11-2 was to separate the Balancing Authority requirements and the GO requirements. R8 brings the BA back into this standard which goes against the premise already set. We recommend this language requiring the BA to solicit GO data to remain in EOP 11-3 to keep the BA requirements out of EOP 12.	
Likes 0	
Dislikes 0	
Response	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
Tacoma Power does not agree with the language proposed in R8.3. TOP-003 provides an avenue for the BA to make a request. Also, EOP-012-2 R8.1 already provides a periodicity. Therefore, the statement "… in the format and at the interval specified by the Balancing Authority" is not needed. Tacoma Power recommends that R8.3 is re-worded to the following: *"Provide the Generator Cold Weather Constraint declaration to the Balancing Authority."*	
Likes 0	
Dislikes 0	

Response

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	No
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Scott McGough - Georgia System Operations Corporation - 3,4

Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx

Comment

Likes 0	
Dislikes 0	

Response

Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten

Answer	Yes
Document Name	

Comment

Xcel Energy supports comments offered by EEI in response to question 9 of the comment form.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes

Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM agrees that Requirement R8 is sufficient to inform the BA of potential impacts a constraint declaration may have on a generating unit’s performance during an Extreme Cold Weather Temperature.	
Likes 0	
Dislikes 0	
Response	

Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees that R8 is sufficient to inform the BA of the potential impacts a constraint declaration may have on the generating unit’s performance to its ECWT.	
Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes

Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern Company supports the EEI comments agreeing that R8 is sufficient to inform the BA of potential impacts to a generation unit’s performance a constraint declaration may have.	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE noticed that Requirement R8 simply requires a declaration to the Balancing Authority (BA). Texas RE recommends the Generator Owner also include justification for the Generator Cold Weather Constraint. Texas RE also recommends making it clear that if the capability and availability require updating, it should be clear that the update does not re-start the periodicity for Requirement R1.	
Likes 0	
Dislikes 0	
Response	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

7. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Based on the table provided in the comment form, which shows EOP-012-1 and EOP-012-2 as both having a 10/1/2024 effective date, Tacoma Power is concerned that EOP-012-1 and EOP-012-2 will be implemented concurrently. Similar to precedent from the PRC-005 revisions, the EOP-012-2 implementation plan should immediately supersede the EOP-012-1 implementation plan. Since EOP-012-1 may not be effective before EOP-012-2 comes to play, it's more appropriate to supersede rather than "retire" EOP-012-1. For example, here's the language used for the PRC-005-6 implementation plan: "Because PRC-005-6 incorporates all revisions to date, this implementation plan will supersede the implementation plans for PRC-005-2(ii), PRC-005-3, PRC-005-3(i), PRC-005-3(ii), PRC-005-4 and PRC-005-5 when PRC-005-6 becomes effective. PRC-005-2(i) will remain in effect and not be retired until entities are required to be compliant with R1, R2, and R5 of the PRC-005-6 standard under this implementation plan." Tacoma Power recommends utilizing similar language in the EOP-012-2 implementation plan to make it clear that entities do not need to concurrently implement both EOP-012-1 and EOP-012-2 at the same time, that the EOP-012-2 implementation plan suipersedes EOP-012-1 (not a retirement), and how the phased implementation Requirements between the two versions should be handled.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

We have been planning for implementation as noted in EOP 12-1. The more aggressive timeframe as provided in EOP 12-1 adds more complexity to our cold weather compliance plans, adds new data and should if anything extend the deadlines, not move them up by 3 years.

Likes 0	
Dislikes 0	

Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
As stated earlier, no timeframe can be developed until EOP-012 is rephased in an understandable manner, especially as regards separating true freezing/congealing (dry bulb temperature and wind) from precipitation. These issues stand separate; a unit protected to -30 F with a 20 mph wind could be knocked offline at 32 F if it has a snow blockage vulnerability.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree with the new dates suggested for EOP-012-2, and recommends remaining with EOP-012-1 dates as no justification has been provided why they are being shortened.	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
We have been planning for implementation as noted in EOP 12-1. The more aggressive timeframe as provided in EOP 12-1 adds more complexity to our cold weather compliance plans, adds new data and should if anything extend the deadlines, not move them up by 3 years.	
Likes 0	
Dislikes 0	

Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	No
Document Name	
Comment	
This time frame may not be sufficient to address freeze protection measures for a multi-unit generator facilities hence there should be a provision for MP to work with the balancing authority to develop and agree on a schedule for corrective action implementation.	
Likes 0	
Dislikes 0	
Response	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
Smaller entities that have multiple projects need to go through a buget process and need time to implement corrections throughout their fleet. Smaller entites will find this a significant burden.	
Likes 0	
Dislikes 0	

Response

Daniel Roethemeyer - Vistra Energy - 5

Answer	No
Document Name	

Comment

We agree with the NAGF comments

Likes 0	
Dislikes 0	

Response

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Buckeye supports the comments by ACES:

While the proposed Implementation Plan timeline for R3 is reasonably feasible for a GO that owns very few units, the proposed schedule is exponentially more difficult for a large GO, especially a GO with a diverse geographic footprint. We recommend a 24-month phased implementation plan for Requirement R3.

Likes 0	
Dislikes 0	

Response

Diana Torres - Imperial Irrigation District - 6

Answer	No
Document Name	

Comment

IID believes that original Implementation plan should be honored, in order to let entities implement CAPs. Outages for Generation units are limited to winter season.

Likes 0	

Dislikes 0	
Response	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	
Minnesota Power supports the North American Generator Forum's (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
Based on the current understanding of what the SDT desires, the NAGF believes that this time frame is likely reasonable. However, the issues raised in other comments must be addressed to ensure that industry fully understands what is expected rather than having significant potential issues caused by the lack of clarity in the use of the term freezing and providing a clear design requirement instead of a strictly temperature-based concept that does not provide a reasonable level of reliability.	
Likes 0	
Dislikes 0	
Response	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren agrees with and supports NAGF comments on this question.	
Likes 0	

Dislikes 0	
Response	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
Enel North America Inc. does not agree with the implementation plan time clock starting on 10/1/2024; Enel does not object to the 12 calendar month implementation plan between the effective date of EOP-012-2 and Requirement R3; however, the concern is based on time period between the FERC approval date and the 10/1/2024 effective date of EOP-012-2. If there are considerable delays between the ballot body approval (and assumed standard language changes due to additional ballots), the time frame to become compliant with the final standard language could be considerably shortened. Additionally, Enel supports the NAGF's stance that "no timeframe can be developed until EOP-012 is rephased in an understandable manner, especially as regards separating true freezing/congealing (dry bulb temperature and wind) from precipitation. These issues stand separate; a unit protected to -30 F with a 20 mph wind could be knocked offline at 32 F if it has a snow blockage vulnerability. … The issues raised in other comments must be addressed to ensure that industry fully understands what is expected rather than having significant potential issues caused by the lack of clarity in the use of the term freezing."	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	
AEPC signed on to ACES comments: While the proposed Implementation Plan timeline for R3 is reasonably feasible for a GO that owns very few units, the proposed schedule is exponentially more difficult for a large GO, especially a GO with a diverse geographic footprint. We recommend a 24-month phased implementation plan for Requirement R3.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	

Answer	No
Document Name	

Comment

Refer to comments in response to Question 5.

Likes 0	
Dislikes 0	

Response

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer	No
Document Name	

Comment

This is not enough time to implement these requirements. These time periods should be added to those invoked by EOP-012-1 Implementation Plan.

Likes 0	
Dislikes 0	

Response

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez

Answer	No
Document Name	

Comment

No objections to proposed plan.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment	
For the reasons discussed in its response to question 9, the SRC believes that the CAP implementation timelines in R7.1.1 and R7.1.2 should be shortened to 12 months and 24 months, respectively and that the language in both of these parts of Requirement R7 should be clarified.	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to “shortened time frame”, which could affect the cost of compliance.	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to “shortened time frame”, which could affect the cost of compliance.	
Likes 0	
Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No

Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to “shortened time frame”, which could affect the cost of compliance.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to “shortened time frame”, which could affect the cost of compliance.	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	
Comment	
We have been planning for implementation as noted in EOP 12-1. The more aggressive timeframe as provided in EOP 12-2 adds more complexity to our cold weather compliance plans, adds new data and should, if anything, extend the deadlines, not move them up by 3 years.	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	

Answer	No
Document Name	

Comment

While the proposed Implementation Plan timeline for R3 is reasonably feasible for a GO that owns very few units, the proposed schedule is exponentially more difficult for a large GO, especially a GO with a diverse geographic footprint. We recommend a 24-month phased implementation plan for Requirement R3.

Likes 0	
Dislikes 0	

Response

Scott McGough - Georgia System Operations Corporation - 3,4

Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx

Comment

Likes 0	
Dislikes 0	

Response

James Keele - Entergy - 3

Answer	Yes
Document Name	

Comment

EOP-012-1

EOP-012-2

Effective Date

10/1/2024

10/1/2024

Have Capability to Operate at ECWT or CAP Developed

4/1/2028

10/1/2025

CAP Completed

no end date specified

10/1/2027 (R7.1.1) or 10/1/2029 (R7.1.2)

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	Yes
Document Name	

Comment

OPG agrees with NPCC/RSC's comments.

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	

Comment

FirstEnergy supports the proposed timeframe.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	Yes
Document Name	

Comment	
WEC Energy Group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern Company supports the EEI comments and is not opposed to the implementation deadlines.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	Yes
Document Name	
Comment	

The MRO NSRF agrees the shortened timeframe is accurate.	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees with the proposed implementation deadlines.	

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	Yes
Document Name	

Comment

NV Energy agrees the shortened timeframe is accurate.

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	Yes
Document Name	

Comment

ISO-NE has no additional comments.

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC

Answer	Yes
Document Name	

Comment

PNM agrees with the proposed implementation deadlines.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation has no additional comments

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	Yes
Document Name	

Comment

SIGE does not oppose the proposed implementation deadlines.

Likes 0	

Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters

Answer	
Document Name	

Comment

Abstain from commenting.

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	
Document Name	

Comment

As stated previously, Texas RE requests justification for the 24 month and 48 month timeframe for completed a CAP.

Likes 0	
Dislikes 0	

Response

8. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical or procedural justification.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

See previous comments for questions 1 and 3.

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

Given we are not in support of these changes as written, meeting the key recommendations in The Report in a cost effective manner cannot be determined.

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

We believe NERC should strongly consider exempting nuclear powered generating units from EOP-012-2. As a NERC Reliability Guideline (Generating Unit Winter Weather Readiness - Current Industry Practices – Version 3) issued in December 2020 states: "*It is recognized that nuclear power plants, in keeping with NRC regulation and INPO guidance already have more detailed Winterization and Summerization procedures than are expected by this document.*" The nuclear power industry is used to working under NRC regulation and INPO guidance in this area, and adding another layer of NERC requirements (potentially overlapping) adds an extra burden to the site staffs and confusion on what actions are necessary and required. We are not aware of any significant performance issues with nuclear generating units during the cold weather events that led to development of the EOP-012 standard.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

For the reasons outlined in its responses to the other questions in these comments, including, but not limited to, the overly broad and ambiguous definition of a commercial constraint and the inconsistency of footnotes 1, 2, and 4 with FERC's directives, the SRC does not agree that EOP-012-2 as proposed meets the key recommendations in the Report or the directives in the FERC order. The SRC has proposed specific language that would ensure the standard meets its intended goal of enhancing reliability in a cost-effective manner.

Likes 0	
Dislikes 0	

Response

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer	No
Document Name	

Comment

There are a limited number of vendors and material supplies available to make these changes. The implementation plan length does not take this into account. Implementation for R3 should be spread over 10 years.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	

Comment

AES CE is concerned about the lack of cost analysis being performed. Currently, as written, there is no basis to assume anything but unlimited cost potential with no economic recovery of these costs. AES CE also supports NAGF's comments.

Likes 0	
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

The Standard is not clear for the hydraulic units in the powerhouse. It significantly increases compliance costs.

Likes 0	
Dislikes 0	

Response

Rhonda Jones - Invenergy LLC - 5,6

Answer	No
Document Name	

Comment

Invenergy is unable to quantify the overall costs and benefits to arrive at a definitive conclusion about the cost effectiveness of the current draft. To determine cost effectiveness, the overall benefit of the proposal must be measured against the overall cost, and neither NERC nor FERC has done that analysis. NERC has written volumes on the expected reliability benefits of the standard, yet it expects generators to spend unlimited sums to comply with the standard without the cost-benefit analysis.

The February 2021 Cold Weather Outages in Texas and the South Central United States (Nov. 2021) (the "Report") recommended that "generating units need to be modified/retrofitted to perform under the adverse winter weather conditions that have been experienced at its location." Report at 188-89. But the Report also emphasized the importance of compensating generators for these retrofits, noting specifically that "Generator Owners should have the opportunity to be compensated for the costs of retrofitting their units to operate to a specified ambient temperature and weather conditions." Report at 191-92. So far, neither NERC, nor FERC (despite numerous asks by industry) has taken any steps to allow for such cost recovery. Invenergy remains concerned that certain generating units, including independent power producers, may be required to bear significant incremental costs to comply with the standard without a corresponding mechanism for recovering those costs.

In addition, the Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing

temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	
See previous comments for questions 1 and 3.	
Likes 0	
Dislikes 0	
Response	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
It is difficult for the industry to determine the full cost implications of EOP-012-2. Particulary with the development of Corrective Action Plans as a result of extreme weather, it is premature, to determine at this time, the cost implications until it is fully known what is actually involved.	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	No
Document Name	
Comment	

Invenergy is unable to quantify the overall costs and benefits to arrive at a definitive conclusion about the cost effectiveness of the current draft. To determine cost effectiveness, the overall benefit of the proposal must be measured against the overall cost, and neither NERC nor FERC has done that analysis. NERC has written volumes on the expected reliability benefits of the standard, yet it expects generators to spend unlimited sums to comply with the standard without the cost-benefit analysis.

The *February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (the "Report") recommended that "generating units need to be modified/retrofitted to perform under the adverse winter weather conditions that have been experienced at its location." Report at 188-89. But the Report also emphasized the importance of compensating generators for these retrofits, noting specifically that "Generator Owners should have the opportunity to be compensated for the costs of retrofitting their units to operate to a specified ambient temperature and weather conditions." Report at 191-92. So far, neither NERC, nor FERC (despite numerous asks by industry) has taken any steps to allow for such cost recovery. Invenergy remains concerned that certain generating units, including independent power producers, may be required to bear significant incremental costs to comply with the standard without a corresponding mechanism for recovering those costs.

In addition, the Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

As stated earlier, imposing retrofit obligations, no matter how slight the gain, unless they are so crushingly expensive as to cause a unit to be retired has nothing to do with cost effectiveness. New units should be made to meet the EOP-012-2 design criteria, existing ones should report their dry bulb temperature, DBT + wind and precipitation capabilities (three parameters, not all rolled into one) and GOs should then make commercial decisions regarding retrofitting of units subject to market make-right provisions. If NERC desires to have all units retrofitted, then NERC must address the compensation issue with FERC before a standard can be considered cost-effective. As written, there is no basis to assume anything but unlimited cost potential with no possible economic recovery of these costs.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	No
Document Name	

Comment

The introduction of the term “Generator Cold Weather Critical Component” and “Generator Cold Weather Reliability Event” as currently drafted could have an undue burden and potential cost impact to nuclear generating units to manage and maintain separate lists of components given the conflict between the NERC Standard defined term and the nuclear industry accepted defined term of a “Critical Component”.

Specifically for nuclear generating units “a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration” is problematic as it conflicts with the typical scoping and identification of a “Critical Component” that is based on a 20 percent plant transient and therefore nuclear generating units will be challenged with implementing and maintaining two separate criteria for critical components. This will not only be challenging but could also incur additional costs in initially defining and maintaining a component list.

Constellation recommends that the drafting team either align the definition or provide an exemption for nuclear generating units to align with the existing implemented criteria for “Critical Components”.

Additionally, forcing retrofits through CAPs without any market driven compensation will put some GOs at a financial disadvantage with possibly limited reliability benefit to the BES.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	No

Document Name

Comment

The introduction of the term “Generator Cold Weather Critical Component” and “Generator Cold Weather Reliability Event” as currently drafted could have an undue burden and potential cost impact to nuclear generating units to manage and maintain separate lists of components given the conflict between the NERC Standard defined term and the nuclear industry accepted defined term of a “Critical Component”. Specifically for nuclear generating units “a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration” is problematic as it conflicts with the typical scoping and identification of a “Critical Component” that is based on a 20 percent plant transient and therefore nuclear generating units will be challenged with implementing and maintaining two separate criteria for critical components. This will not only be challenging but could also incur additional costs in initially defining and maintaining a component list. Constellation recommends that the drafting team either align the definition or provide an exemption for nuclear generating units to align with the existing implemented criteria for “Critical Components”. Additionally, forcing retrofits through CAPs without any market driven compensation will put some GOs at a financial disadvantage with possibly limited reliability benefit to the BES.

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC

Answer	No
Document Name	

Comment

PNM has not completed a full assessment of cost at this point so not ready to confirm the cost effectivness of the project.

Likes 0

Dislikes 0

Response

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Buckeye supports the comments by ACES:

See previous comments for questions 1 and 3.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
Any additional remediation to retrofit existing units by definition does not correlate with addressing the reliability concerns in a cost effective manner. FERC must address the compensation issue before a standard can be considered for cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
Any additional remediation to retrofit existing units by definition does not correlate with addressing the reliability concerns in a cost effective manner. FERC must address the compensation issue before a standard can be considered for cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	
We agree with the NAGF comments	

Likes 0	
Dislikes 0	

Response

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	No
Document Name	

Comment

This is an incredibly burdensome standard for entities who routinely operate in extreme cold weather. Their operations will not be enhanced, and their reliability will not be improved. Entities like these will be subject to addtional compliance requirements, expense and process. Risk of non-compliance will increase to these entities due to adminstrative errors and a non-defect approach to compliance by auditors.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	No
Document Name	

Comment

PGAE agrees and supports the NAGF comments.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

None.

Likes 0

Dislikes 0

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	No
Document Name	

Comment

The changes to EOP-012 address the FERC Order directive, but “cost-effective” is a relative term. This standard will require many GOs to invest additional dollars and customers will bear that burden. If all GO’s invest in or shut down their assets, then the market impacts will be distributed across the utilities.

Likes 0

Dislikes 0

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

no.

Likes 0

Dislikes 0

Response

Richard Jackson - U.S. Bureau of Reclamation - 1

Answer	No
Document Name	

Comment

Reclamation does not agree. As annotated above, if there are any upgrades or new equipment installations required, this would create an undue burden on the GO/TO to accomplish this effort in a short amount of time without adding additional costs/manpower efforts.

Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
As stated earlier, imposing retrofit obligations, no matter how slight the gain, unless they are so crushingly expensive as to cause a unit to be retired has nothing to do with cost effectiveness. New units should be made to meet the EOP-012-2 design criteria; existing ones should report their dry bulb temperature, DBT + wind, and precipitation capabilities (three parameters, not all rolled into one) and GOs should then make commercial decisions regarding retrofitting of units subject to market make-right provisions. If NERC desires to have all units retrofitted, then NERC must address the compensation issue with FERC before a standard can be considered cost-effective.	
Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	Yes
Document Name	

Comment

ISO-NE has no additional comments.

Likes 0	
Dislikes 0	

Response

Marcus Bortman - APS - Arizona Public Service Co. - 6

Answer	Yes
Document Name	

Comment

AZPS agrees.

Likes 0	
Dislikes 0	

Response

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	
Document Name	
Comment	
Black Hills Corporation will not provide comment on cost effectiveness.	
Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer

Document Name

Comment

Black Hills Corporation will not provide comment on cost effectiveness.

Likes 0

Dislikes 0

Response

Micah Runner - Black Hills Corporation - 1

Answer

Document Name

Comment

Black Hills Corporation will not provide comment on cost effectiveness.

Likes 0

Dislikes 0

Response

Claudine Bates - Black Hills Corporation - 6

Answer

Document Name

Comment

Black Hills Corporation will not provide comment on cost effectiveness.

Likes 0

Dislikes 0

Response

Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	
Xcel Energy supports comments offered by EEI in response to question 9 of the comments form.	
Likes 0	
Dislikes 0	
Response	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	
Document Name	
Comment	
Ameren has no comment on the cost effectiveness of the project.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	
Document Name	
Comment	
NV Energy abstains from this comment as cost cannot be determined until entities develop CAPs.	
Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	

Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	
Document Name	
Comment	
The MRO NSRF abstains from this comment as cost cannot be determined until entities develop CAPs.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	
Document Name	
Comment	
Southern Company cannot comment on the cost effectiveness of the modifications as this can’t be known until after implementation.	
Likes 0	
Dislikes 0	
Response	

9. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Robert Follini - Avista - Avista Corporation - 3	
Answer	
Document Name	
Comment	
There are too many changes to cold weather standard too soon. The industry needs to catch up and work on the preious versions before we are ready for incorporating new requirements and obligations in our businesses.	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments and has the following additional comments: i. Considerations should have been given/adopted for generating units that have historically operated in temperatures below 32 degrees Fahrenheit (zero degrees Celsius). ii. EOP-011-02, Requirement 7.3.2 had an “or” between points 7.3.2.1, 7.3.2.2, and 7.3.2.3. When this requirement carried over into EOP-012-02 under Requirement 1.2.2, the “or” was omitted between the corresponding first two points. The “or” should be added again between the first two points. iii. Under the Term Section for “Fixed Fuel Supply Component” of EOP-012-02, please consider including explicit written exception for “water” as a fuel supply to the definition of fuel supply for Hydro. iv. For Requirement R5 under EOP-012-02, suggest instead of annual training, have in place an annual WO (i.e. as the reminder) and Cold Weather Preparedness Training every 3 years.	
Likes 0	
Dislikes 0	
Response	

Sean Steffensen - IDACORP - Idaho Power Company - 1

Answer	
Document Name	

Comment

- R1.2.2 Since the ECWT is calculated with the dry bulb temperature, please provide example of how the concurrent wind and precipitation should be incorporated.
- The first bullet point under R1.2.2 states “Design temperature **and** if available, concurrent wind speed and precipitation.” In EOP-011-2, “design temperatures” was followed by an “or”. At Idaho Power, only a couple generators available design temperatures. Please give an acceptable option for units that do not have an available design temperature.
- R2 includes the term “self-commits”. Please define this.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	
Document Name	

Comment

1. The word “component” in the terms “Generator Cold Weather Critical Component,” “Fixed Fuel Supply Component” and their definitions should be changed to, “equipment or systems.” The water and steam systems of fossil and combined cycle plants consist of at least hundreds, more likely thousands of components (pipe, tubing, tees, elbows, valves, traps, transmitters, manifolds etc), all protected by a single measure (heat tracing and insulation). Making GOs list them all would be crushingly burdensome, with no BES reliability value whatsoever. The same is true of instrument air systems, which again have a single freeze protection measure (the dryer). We should be allowed to simply declare for example,

“Pump room – close windows before the onset of winter,” instead of having to list every item in this room.

Higher granularity is needed at times, though, and EOP-012-2 should require GO/GOPs to focus where the action is, which for conventional generation plants is transmitters that can trip units. A list should be required in this respect, noting that we are once again talking about systems and not components (freezing generally occurs in the impulse lines, not the transmitters themselves). Having to list every pipe run, section of tubing, valve, fitting, door, window, louver etc in the plant would constitute squandering our limited resources. We do support however preparing a list of cold weather critical transmitter systems, so that these key items (including the manifolds and impulse lines) can be prioritized properly out of the innumerable components affected by cold weather. The standard as presently written detracts from BES reliability rather than augmenting it for real-world (i.e. resource-limited) situations, due to not allowing GO/GOPs to prioritize their work.

2. The term, “a specified start-up time,” in the Generator Cold Weather Reliability Event definition is excessively vague. What time - to synchronize? To reach the minimum stable load? Full load? A cold start? Warm start? Specified by whom – the plant? The BA/RC/TOP? Specified how – in the IRP-010/TOP-003 data specification? In the MOD-032 report?

It should be changed to, “the startup time agreed-to by the GO/GOP for the extreme cold weather conditions at hand, if more than four hours of delay was caused by genuine freezing of equipment.” A GO should not be punished, for example, if a unit capable of starting within eight hours in the summer unexpectedly took twelve and a half hours during a blizzard because the outside operators had to shovel their way through snowdrifts. An extreme cold weather cold-startup time (ECWCST) reported to the Transmission Operator," and GOs should in turn be required to state an ECWCST.

None of the BA/RC/TOPs we deal with currently request such winter vs non-winter information for MOD-032, IRO-010 or TOP-003, and that's part of the problem. A unit with a typical cold-startup time of eight hours might normally need twelve hours when at the ECWT. This is a fact of life, to be taken into account by the TOP when dispatching units, not a threat to BES reliability. One could also ask for at-ECWT hot-startup and warm-startup times, but this would constitute getting over-complicated.

3. R1 should be amended to cover first-time calculation of the ECWT, instead of beginning with criteria for recalculations. Alternatively, make R4 the new R1 (EWCT calculation), pushing the present R1 (recalculation) to the #2 spot.

4. There should be a footnote or Guidance section statement noting that the ECWT calculated for responding to NERC's May 2023 winterization Alert may be used as the first-time identification of this figure for EOP-012 compliance; one doesn't need to make an update upon EOP-012 becoming effective. This material should also state that data may be drawn from any nearby airport. One doesn't need to prove which is the closest, where several such facilities exist. Add also that plant-measured readings are acceptable but not mandatory or even preferred. Our experience is that it is difficult to obtain accurate weather data at a conventional power plant.

Likes 0

Dislikes 0

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer

Document Name

Comment

There are too many changes to cold weather standard too soon. The industry needs to catch up and work on the preious versions before we are ready for incorporating new requirements and obligations in our businesses.

Likes 0

Dislikes 0

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer

Document Name

Comment

None at this time.

Likes 0

Dislikes 0

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer

Document Name

Comment

WEC Energy Group supports EEIs additional comments.

Likes 0

Dislikes 0

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

Southern Company supports the EEI comments.

Likes 0

Dislikes 0

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer

Document Name

Comment

None.

Likes 0

Dislikes 0

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	
Document Name	

Comment

PGAE agrees and supports the NAGF comments. PGAE has the following additional comments:

The previous draft version has a section 4.2.2 “Exemptions” that has been deleted. PGAE disagrees with the removal of this section. Some generators in the PGAE portfolio have Extreme Cold Weather Temperature higher (warmer) than 32 degrees Fahrenheit. These generator stations do not have specific cold weather equipment or annual maintenance plans or actions taken for cold weather season preparations. These types of Generators need a clearly defined exemption process, such as what was issued for Industry use in EOP-012-1, section 4.2.2. The current exemption notes are unclear of whether or not generating units that have a ECTWS warmer that 32 degrees Fahrenheit are exempt. The notes states in part: Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit….are exempt. PGAE recommends revising all the notes to state: “Generating unit(s) that do not self-commit, are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) or have a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) , but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement”.

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer	
Document Name	

Comment

N/A

Likes 0	
Dislikes 0	

Response

Abbas Munir - Bruce Power - 5 - NPCC

Answer	
Document Name	

Comment

No further comments

Likes 0	
Dislikes 0	

Response

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	
Document Name	

Comment

- The NSRF would like the SDT to consider adding the word “system” to the Generator Cold Weather Critical Equipment definition. The NERC defined term was created in response to the FERC/NERC report Key Recommendation 1a where it recommends that NERC Reliability Standards be revised *“To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start.”*

In addition to the FERC/NERC report, the *NERC Reliability Guideline – Generating Unit Winter Weather Readiness – Current Industry Practices* also consistently refers to *“…critical components, systems, and other areas of vulnerability which may experience freezing problems or other cold weather operational issues.”*

Omitting the word system from the definition could introduce opportunities during CMEP activities to compel entities to provide a list of individual components of systems rather than the systems themselves. This could potentially create an unnecessary administrative burden for registered entities.

One example of the challenge this interpretation could present is in the nuclear industry where INPO AP-913 already defines critical components in a similar manner (See excerpt from INPO AP-913 at the end of this comment) as the proposed terms in EOP-012-2 but with a key difference of a 20% derate threshold in INPO AP-913 versus a 10% in the proposed NERC term. The differing criteria would cause that industry to maintain two separate base lists of critical components where they otherwise could use one and then determine the equipment susceptible to freezing. While changing the criteria in the NERC Generator Cold Weather Reliability Event definition to a 20% derate threshold would alleviate the increased administrative task for the nuclear industry it would still create an additional burden for non-nuclear generation. Using the word “system” would alleviate that interpretation concern and allow entities to focus on the intent of the Standard.

Proposed language for NERC term:*“Generator Cold Weather Critical Component - Any generating unit component,* ***system*** *or associated Fixed Fuel Supply Component that is under the Generator Owner’s control and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.”*

INPO-913:

“A component shall be classified as critical if a credible single-active component failure will directly result in any of the following unacceptable consequences:

- *reactor scram or turbine trip that will result in a reactor scram (SPV)*
- *significant power transient of greater than 20 percent plant transient (Operational Loss Event)*

- *mitigating system performance indices (MSPI)-monitored component failure*
- *any single failure that causes a complete loss of any of the following critical safety functions*
    - *core, reactor coolant system (RCS) or spent fuel pool (SFP) heat removal*
    - *containment isolation, temperature or pressure*
    - *}reactivity control*
    - *vital alternating current (AC) electrical power*
- *a single equipment failure that results in the complete loss of a Maintenance Rule high-safety-significant or risk-significant function"*

- The MRO NSRF would like the SDT to consider adding clarifying language to R5. The current language allows for interpretation during CMEP activities regarding who should receive the training. The MRO NSRF would like to propose the following language:

"R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s), ***as identified by the responsible entity,*** *developed pursuant to Requirement R4."*

- The MRO NSRF would like the SDT to consider adding clarifying language to R7.4 to better align with the existing proposed language in M7. Because the last sentence in M7 does not correspond fully to language in R7.4 and the Measures are not enforceable, we believe that adding a couple words from M7 to the R7.4 requirement will clarify what documentation is required when claiming a Generator Cold Weather Constraint based on a CAP.

The existing measurement for R7 stipulates "Any declaration shall contain dated documentation to support constraints identified by the Generator Owner". However, R7.4 does not require a dated declaration.

Proposed language for 7.4: *"Document in a* ***dated*** *declaration, with* ***supporting*** *justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan."*

- The MRO NSRF is extremely concerned about the method by which the SDT is considering ECWT regarding design requirements and also the method and degree by which cooling due to wind and the effects of precipitation are being considered.

For example, R2.1 requires new units to be able to operate at the unit's ECWT for a period of not less than 12 hours and with a sustained concurrent wind speed of 20 mph. If a unit was to experience conditions of a temperature equal to the ECWT for a period of time equal to 12 hours but with a sustained wind speed of 30 mph, the Generator Owner would be required to perform a CAP if one of the 3 criteria for a Generator Cold Weather Reliability Event was met, regardless of the fact that unit was operating at conditions that exceed the design requirements set forth by THIS standard. There are many other scenarios that could occur where a unit could be found to be deficient as per R6 and require a CAP while operating at conditions that far exceed the severity, in terms of cooling effect or heat loss, which is required by R2 or R3, as applicable.

The MRO NSRF suggests the following change:

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner’s control *(and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature, REMOVE)* during a period where the facility experienced conditions (including considerations for temperature, duration, and wind speed) that would cause freezing at a rate equal to or at a rate slower than the design conditions set forth by this Standard:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time;

or

(3) a Forced Outage.

Likes 0

Dislikes 0

Response

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer

Document Name

Comment

See comments submitted by Edison Electric Institute

Likes 0

Dislikes 0

Response

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer

Document Name

Comment

This proposed standard needs major revisions to assure the compliance burden to smaller utilities who operate traditionally in severe weather are not negatively impacted do to compliance risks and administrative burdens.

Likes 0

Dislikes 0	
Response	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	
Document Name	
Comment	
Regarding the requirements under R4, a generator must develop, implement and maintain a preparedness plan to address identified critical components. However, for generators that experience an Extreme Cold Weather reliability event and a identified critical component (that has been protected) fails resulting in such an event, how would this be handled in the enforcement of the standard? Please explain if this is a violation of the standards. This standard applies only to generator owners. What about interconnection leads or components that potentially are subject to freezing and can also fail during freeze events? Are these in scope? This is especially impactful for generators that own switchyard equipment.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	
Document Name	
Comment	
Regarding the requirements under R4, a generator must develop, implement and maintain a preparedness plan to address identified critical components. However, for generators that experience an Extreme Cold Weather reliability event and a identified critical component (that has been	

protected) fails resulting in such an event, how would this be handled in the enforcement of the standard? Please explain if this is a violation of the standards.

This standard applies only to generator owners. What about interconnection leads or components that potentially are subject to freezing and can also fail during freeze events? Are these being considered? This is especially impactful for generators that own switchyard equipment.

Likes 0	
Dislikes 0	

Response

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	
Document Name	

Comment

Buckeye supports the following comments made by ACES:

Extreme Cold Weather Temperature: The flexibility and intent behind using the “lowest 0.2 percentile” is greatly appreciated; however, the requirement to use a fixed start date seems a bit excessive. By using a fixed start date, the dataset will grow by 10,824 data points every 5 years when the ECWT is recalculated.
Given the inherent difficulty of compiling a dataset containing greater than 52,000 data points and then calculating the lowest 0.2 percentile, we recommend modifying the definition to remove the requirement to use a fixed data start date of 01/01/2000.
Our proposed modification to the definition would be: “The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from the previous 20 years immediately prior to the date the temperature is calculated. “
R4.1 (footnote 3): By including the stipulation that the GO shall “include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature” in a footnote, the SDT is setting the GO up for failure. If it is the intent of the SDT to require the GO to keep records of each ECWT calculation performed by the entity to ensure the lowest value is always captured, then this language should be included in a Requirement and not in the footnotes.

R5: Regarding the proposed verbiage requiring “generating unit-specific training”, it is our opinion that this could be overly burdensome for stations with multiple units; particular for those stations with multiple units of a similar design (a.k.a. “sister” units). Recommend modifying this requirement to require station-specific training in lieu of generating unit-specific training.
It is our opinion that this modification will allow the GO/GOP the flexibility to develop their training modules with an appropriate level of detail to sufficiently train station personnel without requiring them to create multiple modules with similar or identical content.
R6. Concerning the proposed timeline for the development of a CAP, it is our recommendation that the July 1st date be removed from this requirement. The rationale for this recommendations is thus: 150 days prior to July 1st is Feb 1st for non-leap years and Feb 2nd for leap years. Moreover, the July 1st timeline is further condensed if a Generator Cold Weather Reliability Event (GCWRE) occurs in March or April. Lastly, the stated intent of the timeframe options within the Technical Rationale is to allow GOs to review multiple events holistically following a winter season. In certain areas of the country, a GCWRE could realistically occur as early as late-October. In this instance, the latest possible date for the development of a CAP would be March 30th.
Given that it is also realistic for a GCWRE to occur in March, 150 days seems a reasonable number of days to cover all but the most extreme scenarios. Therefore, we recommend removing the hard deadline of July 1st.

Likes 0	
Dislikes 0	

Response	
Stewart Yuen - Nuclear Energy Institute - NA - Not Applicable - NA - Not Applicable	
Answer	
Document Name	
Comment	

From the attached NEI letter date 7/20/2023:

On behalf of the Nuclear Energy Institute's (NEI){C}[1] members (hereinafter referred to as industry), we provide some comments on Project 2021-07, "Extreme Cold Weather Grid Operations, Preparedness, and Coordination."

The introduction of the term "Critical Component" as currently drafted conflicts with the existing definition used across the nuclear industry and will create unnecessary confusion for nuclear generating units to manage.

In the proposed draft of EOP-012-2 the term "Generator Cold Weather Critical Component" is defined as "[a]ny generating unit component or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event."

A "Generator Cold Weather Reliability Event is further" defined as events "for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature." One of the events listed is:

{C}(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration

Specifically for nuclear generating units, "a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration" is problematic as it conflicts with the nuclear industry standard definition of a "Critical Component" as defined in industry Equipment Reliability guidance documents. Specifically, the determination of a "critical component" in this context is associated with a credible single-active component failure that will directly result in certain unacceptable consequences. One of those consequences listed is a "significant power transient of greater than 20 percent plant transient (Operational Loss Event)". It should be noted that this includes any single active component failure that causes the 20% derate, so components whose active failure is a result of cold weather would already be considered critical components.

Additionally, since the nuclear industry has implemented the 20% derate criteria to identify critical components as a measure of equipment reliability, the U.S. nuclear fleet overall capability factor has been consistently between 91% and 92.5 % since 2017 which is an industry best benchmark for equipment reliability.

Without revising or aligning the NERC Standard newly defined term of “a forced derate of more than 10%” to the nuclear industry defined term of “greater than a 20 percent plant transient” the nuclear generating units will be burdened with managing two separate criteria for critical components. This would generate confusion and impose an unnecessary burden on the nuclear industry.

NEI recommends that the drafting team either align the NERC Standard definition with the existing and currently implemented criteria under nuclear industry guidance documents or provide an exception for nuclear generating units.

{C}[1] The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI’s members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

Likes 0

Dislikes 0

Response

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin

Answer

Document Name

Comment

ITC supports EEI's comments.

Likes 0

Dislikes 0

Response

Bret Galbraith - Seminole Electric Cooperative, Inc. - 6

Answer

Document Name

Comment

1. The SDT’s Extreme Cold Weather Temperature uses a percentile of 0.2. This value consists of a significant digit in the tenth decimal. Using this rationale, when a GO calculates its R1 value, if on year one the GO calculated a temperature of 23.8 F, but then on year 5 the GO recalculated and its subsequent temperature was 23.6 F, it appears that a GO may need to review and update its plans again for a mere 0.2 F change. Please confirm how many significant digits an entity is required to go out to when calculating R1 temperatures.

2. For R1, Seminole suggests a baseline temperature, akin to what NERC has implemented in many PRC Standards, and then a required deviation from that value that would trigger a re-review. For example, if an entity's initial calculation is 10.5 F, then a 5 F decrease is needed in order to set up a new review of all of its cold weather preparedness plans. A review of a GO's plan should not be required for minute decreases in temperature across the board, and if the SDT is afraid of some critical component limit being hit by the lower temperature, a carve out for this concern could be worked into the proposed language that would trigger a re-review.

3. In R2, NERC is using only 2 significant digits when it states "at or below a temperature of 32 degrees F". If an entity calculates its temperature to be 32.5F, Seminole understands that it will round this value up to 33F for R2. Seminole would like clarification from the SDT if the calculated Extreme Cold Weather Temperature value is calculated to 32.4 F, is this value "greater" than 32 F or is it "equal" to 32 F?

Likes 0

Dislikes 0

Response

Lindsey Mannion - ReliabilityFirst - 10

Answer

Document Name

Comment

RF appreciates the work of the Standard Drafting Team on this project.

Likes 0

Dislikes 0

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer

Document Name

Comment

NV Eneergy would like the SDT to consider adding the word "system" to the Generator Cold Weather Critical Equipment definition. The NERC defined term was created in response to the FERC/NERC report Key Recommendation 1a where it recommends that NERC Reliability Standards be revised *"To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start."*

In addition to the FERC/NERC report, the *NERC Reliability Guideline – Generating Unit Winter Weather Readiness – Current Industry Practices* also consistently refers to *"…critical components, systems, and other areas of vulnerability which may experience freezing problems or other cold weather operational issues."*

Omitting the word system from the definition could introduce opportunities during CMEP activities to compel entities to provide a list of individual components of systems rather than the systems themselves. This could potentially create an unnecessary administrative burden for registered entities.

One example of the challenge this interpretation could present is in the nuclear industry where INPO AP-913 already defines critical components in a similar manner (See excerpt from INPO AP-913 at the end of this comment) as the proposed terms in EOP-012-2 but with a key difference of a 20% derate threshold in INPO AP-913 versus a 10% in the proposed NERC term. The differing criteria would cause that industry to maintain two separate base lists of critical components where they otherwise could use one and then determine the equipment susceptible to freezing. While changing the criteria in the NERC Generator Cold Weather Reliability Event definition to a 20% derate threshold would alleviate the increased administrative task for the nuclear industry it would still create an additional burden for non-nuclear generation. Using the word "system" would alleviate that interpretation concern and allow entities to focus on the intent of the Standard.

Proposed language for NERC term:*"Generator Cold Weather Critical Component - Any generating unit component, **system** or associated Fixed Fuel Supply Component that is under the Generator Owner's control and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event."*

INPO-913:

"A component shall be classified as critical if a credible single-active component failure will directly result in any of the following unacceptable consequences:

reactor scram or turbine trip that will result in a reactor scram (SPV)

significant power transient of greater than 20 percent plant transient (Operational Loss Event)

mitigating system performance indices (MSPI)-monitored component failure

any single failure that causes a complete loss of any of the following critical safety functions:

core, reactor coolant system (RCS) or spent fuel pool (SFP) heat removal

containment isolation, temperature or pressure

reactivity control

vital alternating current (AC) electrical power

a single equipment failure that results in the complete loss of a Maintenance Rule high-safety-significant or risk-significant function"

NV Energy would like the SDT to consider adding clarifying language to R5. The current language allows for interpretation during CMEP activities regarding who should receive the training. NV Energy would like to propose the following language:

*"R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s), **as identified by the responsible entity,** developed pursuant to Requirement R4."*

NV Energy would like the SDT to consider adding clarifying language to R7.4 to better align with the existing proposed language in M7. Because the last sentence in M7 does not correspond fully to language in R7.4 and the Measures are not enforceable, we believe that adding a couple words from M7 to the R7.4 requirement will clarify what documentation is required when claiming a Generator Cold Weather Constraint based on a CAP.

The existing measurement for R7 stipulates “Any declaration shall contain dated documentation to support constraints identified by the Generator Owner”. However, R7.4 does not require a dated declaration.

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NV Energy is extremely concerned about the method by which the SDT is considering ECWT regarding design requirements and also the method and degree by which cooling due to wind and the effects of precipitation are being considered.

For example, R2.1 requires new units to be able to operate at the unit’s ECWT for a period of not less than 12 hours and with a sustained concurrent wind speed of 20 mph. If a unit was to experience conditions of a temperature equal to the ECWT for a period of time equal to 12 hours but with a sustained wind speed of 30 mph, the Generator Owner would be required to perform a CAP if one of the 3 criteria for a Generator Cold Weather Reliability Event was met, regardless of the fact that unit was operating at conditions that exceed the design requirements set forth by THIS standard. There are many other scenarios that could occur where a unit could be found to be deficient as per R6 and require a CAP while operating at conditions that far exceed the severity, in terms of cooling effect or heat loss, which is required by R2 or R3, as applicable.

NV Energy suggests the following change:

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner’s control ***(and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature, REMOVE)*** during a period where the facility experienced conditions (including considerations for temperature, duration, and wind speed) that would cause freezing at a rate equal to or at a rate slower than the design conditions set forth by this Standard:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time;

or

(3) a Forced Outage.

Likes 0	
Dislikes 0	

Response

Diana Torres - Imperial Irrigation District - 6

Answer

Document Name

Comment

None

Likes 0

Dislikes 0

Response

Nicolas Turcotte - Hydro-Quebec (HQ) - 1

Answer

Document Name

Comment

- Considerations should have been given/adopted for generating units that have historically operated in temperatures below 32 degrees Fahrenheit (zero degrees Celsius).
- EOP-011-02, Requirement 7.3.2 had an “or” between points 7.3.2.1, 7.3.2.2, and 7.3.2.3. When this requirement carried over into EOP-012-02 under Requirement 1.2.2, the “or” was omitted between the corresponding first two points. The “or” should be added again between the first two points
- Under the Term Section for “Fixed Fuel Supply Component” of EOP-012-02, please consider including explicit written exception for “water” as a fuel supply to the definition of fuel supply for Hydro.
- For Requirement R5 under EOP-012-02, suggest instead of annual training, have in place an annual WO (i.e. as the reminder) and Cold Weather Preparedness Training every 3 years.

- In the standard (R2 and R3), NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, for certain entities, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

- R4 of the standard requires having a preparation plan (or plans) for operation in cold weather and having specific training for each production group on cold protection measures (R5). As cold weather operations are part of our normal operations in the winter in Canada, these elements are already an integral part of our operating frameworks without necessarily being a dedicated document, but rather measures applicable to each plant are incorporated in the operator training program, for example.

- We reiterate that the standard represents an administrative burden for generating units are already regularly called upon during extreme cold weather, such is the case in Canada.

Likes 0

Dislikes 0

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	
Document Name	

Comment

ISO-NE agrees with the SRC that R1 should be revised, so that the ECWT is calculated **annually** and updated in the GO’s Cold Weather Preparedness Plan.

ISO-NE also recommends that the GO Cold Weather Preparedness Plan outlined in R4 be moved to R1 and should include all of the currently written R1 as Sub-requirements of the Preparedness plan. This would makes logical sense since the parts of R1 are referenced in the Current R4.1 and 4.2 to be included in the preparedness plan *"as described in R1"* and *"as described in Part 1.2"*.

This would be consistent with the layout of other NERC Standards that require an “Operating Plan” such as EOP-011 R1 and R2 which both state that *“Each TOP/BA shall develop, maintain, and implement one or more Reliability Coordinator-reviewed Operating Plan(s) to mitigate operating Emergencies in its TOP/BA Area. The Operating Plan(s) shall include the following, as applicable: ...”*

Suggested Edit:

R1. Each Generator Owner shall develop, maintain, and implement one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]

1.1. The lowest calculated Extreme Cold Weather Temperature for each unit.

1.1.1. Annually, each Generator Owner shall, for each of its applicable generating unit(s):

1.1.1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) and identify the calculation date and source of temperature data; and

1.1.1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within six months of the recalculation.

1.2. **Annually,** identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Fuel switching capabilities; and

1.2.1.4. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature and if available, concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, concurrent wind speed and precipitation; or

- Current cold weather performance temperature determined by an engineering analysis, which includes concurrent wind speed and precipitation.

1.3. Documentation identifying the Generator Cold Weather Critical Components;

1.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

1.5. **Annual** inspection and maintenance of generating unit(s) freeze protection measures.

M1. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R1. Examples of documentation to demonstrate inspections and maintenance has been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained

Likes 0	
Dislikes 0	

Response

Junji Yamaguchi - Hydro-Quebec (HQ) - 5

Answer	
Document Name	

Comment

Considerations should have been given/adopted for generating units that have historically operated in temperatures below 32 degrees Fahrenheit (zero degrees Celsius).

EOP-011-02, Requirement 7.3.2 had an "or" between points 7.3.2.1, 7.3.2.2, and 7.3.2.3.
When this requirement carried over into EOP-012-02 under Requirement 1.2.2, the "or" was omitted between the corresponding first two points. The "or" should be added again between the first two points.

Under the Term Section for "Fixed Fuel Supply Component" of EOP-012-02, please consider including explicit written exception for "water" as a fuel supply to the definition of fuel supply for Hydro.

For Requirement R5 under EOP-012-02, suggest instead of annual training, have in place an annual WO (i.e. as the reminder) and Cold Weather Preparedness Training every 3 years.

In the standard (R2 and R3), NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, for certain entities, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4 of the standard requires having a preparation plan (or plans) for operation in cold weather and having specific training for each production group on cold protection measures (R5). As cold weather operations are part of our normal operations in the winter in Canada, these elements are already an integral part of our operating frameworks without necessarily being a dedicated document, but rather measures applicable to each plant are incorporated in the operator training program, for example.

We reiterate that the standard represents an administrative burden for generating units are already regularly called upon during extreme cold weather, such is the case in Canada.

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC

Answer	
Document Name	

Comment

PNM supports EEI comments for this question.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	
Document Name	

Comment

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Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0

Dislikes 0

Response

Alison MacKellar - Constellation - 5

Answer

Document Name

Comment

The existing nuclear generator weatherization programs, for both hot and cold weather, developed to comply with NRC regulations and INPO guidance, have been shown to be sufficiently robust to provide reasonable assurance of operation during severe cold weather, e.g., during winter storm Elliott. Given the effectiveness of the existing nuclear programs, and continuing nuclear industry efforts to improve, it is recommended that an exemption be included in EOP-012 for nuclear generators, similar to that in the CIP Standards.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer

Document Name

Comment

1. The word “component” in the terms “Generator Cold Weather Critical Component,” “Fixed Fuel Supply Component” and their definitions should be changed to, “equipment or systems.” The water and steam systems of fossil and combined cycle plants consist of at least hundreds, more likely thousands of components (pipe, tubing, tees, elbows, valves, traps, transmitters, manifolds etc.), all protected by a single measure (heat tracing and insulation). Making GOs list them all would be crushingly burdensome, with no BES reliability value whatsoever. The same is true of instrument air systems, which again have a single freeze protection measure (the dryer). We should be allowed to simply declare for example, “Pump room – close windows before the onset of winter,” instead of having to list every item in this room.

Higher granularity is needed at times, though, and EOP-012-2 should require GO/GOPs to focus on critical components, which for conventional generation plants are transmitters that can trip units. A list should be required in this respect, noting that we are once again talking about systems and not components (freezing generally occurs in the impulse lines, not the transmitters themselves). Listing every pipe run, section of tubing, valve, fitting, door, window, louver etc. in the plant however would be an inefficient use of our limited resources. The NAGF does support preparing a list of cold weather critical transmitters, so that these key items (and their manifolds) can be prioritized properly out of the innumerable components affected by cold weather. The standard as presently written detracts from BES reliability rather than augmenting it for real-world (i.e. resource-limited) situations, due to establishing a 300-way tie for priority #1.

2. R1 should be amended to clearly address first-time calculation of the ECWT, instead of beginning with criteria for recalculations. Alternatively, make R4 the new R1 (EWCT calculation), pushing the present R1 (recalculation) to the #2 spot.

3. As written, the information provided under 1.2.2 will at best create unreasonable expectations. A single point in time with a temperature and wind speed does not identify the actual capabilities of a generating unit. A unit that ran at zero degrees and 10 mph wind may easily freeze at that same temperature and wind speed if the temperatures are cold for a longer period leading up to that point. The unit may also have problems if the temperature is warmer but the wind speed is higher. By focusing on dry bulb temperature and then adding wind and precipitation, the SDT will identify a single point upon a wide curve where a unit can operate.

Even worse is concurrent precipitation. It is likely that most if not nearly all units for which the historical operation method is used will report, “X deg. F DBT, concurrent wind speed Y mph, concurrent zero precipitation.” How are BAs, RCs and TOPs to make use of reported precipitation rates of zero, other than to conclude as we stated above that accretion and blockage are unrelated to freezing?

We are not adverse to providing data, but GOs being held accountable for others’ misinterpretation of our reports is a concern. It appears that the SDT has not yet developed a data specification concept that gives BAs, RCs and TOPs the information they need to accurately predict resource availability for each of the extreme cold weather types:

- Exceptionally cold, little or no wind
- Very cold, high wind (all of the recent generation emergencies that have required shedding firm load have been of this type)
- High precipitation

The SDT probably should not be responsible for creating this type of data specification. However, until NERC pushes these entities to follow recommendations made for at least the last 12 years, it is likely that we will continue to have failures during cold weather events due to a lack of reasonable effort made by the real-time planning entities.

4. The R3 expression, “not capable of operating at its Extreme Cold Weather Temperature,” should be clarified for GOs using the historical operation method as being consistent with R1.2.2, “at least one hour in duration.” The reason is that the gradual bottoming-out of winter storms causes survival through the nadir to constitute firm proof of capability. The benchmark storm for the PJM is for example, the Polar Vortex of 2014 produced hourly dry bulb temperatures at Allentown, Pa of 7, 6, 4, 4, 2, 1, 0, 0, -1, 1, 2, 3, 4, 5 degrees F. It is obvious that the lengthy, gradual lead-in is sufficient to support a claimed capability of -1 F.

As currently written, it is unclear if an entity with the ECWT above 32 degrees can comply with Requirements R4 and R5. As written, the entity will be unable to identify any generator Cold Weather Critical Components, therefore they will be unable to identify any freeze protection measures and the annual maintenance of those measures. For training, there will be no one to train. This is caused by the very specific requirement to address GCWCC developed in R4. For a unit with an ECWT above 32 degrees, these devices do not exist. The question that needs addressed by the SDT is “Does a unit with an ECWT above 32 degrees need a plan that addresses items that are not listed as required to be included?” The NAGF notes that this issue did not exist under EOP-012-1 or EOP-011-2 due to the different language used related to freeze protection measure (no limitation for GCWCC) or the exclusion of entities that did not operate at low temperatures. While the SDT has done a commendable job to address the issues identified by FERC in the order approving EOP-012-1, the SDT needs to further modify the proposed standard to clarify how an entity with an ECWT is expect to meet the training requirement when there is nothing to be trained on.

Likes 0	
Dislikes 0	

Response

Colin Chilcoat - Invenergy LLC - 6

Answer	
Document Name	

Comment

In calculating the Extreme Cold Weather Temperature (ECWT) at multiple facilities so far, Invenergy has, in some cases, been unable to obtain sufficient hourly temperature data coverage back to 1/1/2000, using the methodology NERC set forth in *Calculating Extreme Cold Weather Temperature* (Sept. 2022) using NOAA's climate data tool. For example, there were multiple instances of 5-years of missing hourly data for the closest, most reasonable location for a facility. Invenergy supplemented its ECWT calculations with the next nearest available temperature data, which was sometimes hundreds of miles away from the facility's location. Temperatures that are hundreds of miles away from a location can be drastically different than those at the site, thus skewing the ECWT. Invenergy recognizes that the Technical Rationale document states "If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility." However, given the frequency of unreliable or insufficient data available in the sources that NERC has suggested, it would be helpful to have further guidance on best practices for calculating a facility's ECWT to avoid having to utilize hourly temperatures for areas far distant from a facility, or alternative methodologies from those presented in *Calculating Extreme Cold Weather Temperature* (Sept. 2022).

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	

Response

Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten

Answer	
Document Name	

Comment

Xcel Energy supports comments offered by EEI in response to this question.

Likes 0	

Dislikes 0	

Response

Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster

Answer	
Document Name	

Comment

Evergy asks the SDT to consider making some non-substantive changes to Requirement R7, subpart 7.4 in order to clarify what is required when claiming a Generator Cold Weather Constraint based on a CAP. Evergy believes that the Measures for R7 indicates specific requirements that the drafting team believed a constraint declaration should include and we are proposing to add that language to the acutal requirement so it is enforceable versus only appearing in an uneforcable measure. (Proposed changes in boldface below)

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.4 Document in a **dated** declaration, with **supporting** justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each CAP, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each CAP and the completion of actions for each CAP including revision history of each CAP. Evidence may also include work management program records, work orders, and maintenance records. **Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.**

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	
Document Name	

Comment

Enel North America Inc. would like the SDT to also consider the impacts of a NERC Reliability Standard where there are regulatory requirements in overlapping jurisdictions. For example, the Public Utility Commission of Texas has a regulatory requirement (16 TAC 25.55) for cold weather preparations including implementing weather emergency preparations measures to reasonably ensure sustained operation of the resource at the 95th percentile minimum average 72-hour wind chill temperature as reported in the ERCOT historical weather study (16 TAC 25.55(c)(1)(B)). Regional variances should be considered by the SDT where conflicting and similar regulations exist.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	
Document Name	

Comment

AEPC signed on to ACES comments:

Extreme Cold Weather Temperature: The flexibility and intent behind using the “lowest 0.2 percentile” is greatly appreciated; however, the requirement to use a fixed start date seems a bit excessive. By using a fixed start date, the dataset will grow by 10,824 data points every 5 years when the ECWT is recalculated.

Given the inherent difficulty of compiling a dataset containing greater than 52,000 data points and then calculating the lowest 0.2 percentile, we recommend modifying the definition to remove the requirement to use a fixed data start date of 01/01/2000.

Our proposed modification to the definition would be: “The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from the previous 20 years immediately prior to the date the temperature is calculated. “

R4.1 (footnote 3): By including the stipulation that the GO shall “include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature” in a footnote, the SDT is setting the GO up for failure. If it is the intent of the SDT to require the GO to keep records of each ECWT calculation performed by the entity to ensure the lowest value is always captured, then this language should be included in a Requirement and not in the footnotes.

R5: Regarding the proposed verbiage requiring “generating unit-specific training”, it is our opinion that this could be overly burdensome for stations with multiple units; particular for those stations with multiple units of a similar design (a.k.a. “sister” units). Recommend modifying this requirement to require station-specific training in lieu of generating unit-specific training.

It is our opinion that this modification will allow the GO/GOP the flexibility to develop their training modules with an appropriate level of detail to sufficiently train station personnel without requiring them to create multiple modules with similar or identical content.

R6. Concerning the proposed timeline for the development of a CAP, it is our recommendation that the July 1st date be removed from this requirement. The rationale for this recommendations is thus: 150 days prior to July 1st is Feb 1st for non-leap years and Feb 2nd for leap years. Moreover, the July 1st timeline is further condensed if a Generator Cold Weather Reliability Event (GCWRE) occurs in March or April. Lastly, the stated intent of the timeframe options within the Technical Rationale is to allow GOs to review multiple events holistically following a winter season. In certain areas of the country, a GCWRE could realistically occur as early as late-October. In this instance, the latest possible date for the development of a CAP would be March 30th.

Given that it is also realistic for a GCWRE to occur in March, 150 days seems a reasonable number of days to cover all but the most extreme scenarios. Therefore, we recommend removing the hard deadline of July 1st.

Thank you for the opportunity to comment.

Likes 0	
Dislikes 0	

Response

Rhonda Jones - Invenergy LLC - 5,6

Answer	
Document Name	

Comment

In calculating the Extreme Cold Weather Temperature (ECWT) at multiple facilities so far, Invenergy has, in some cases, been unable to obtain sufficient hourly temperature data coverage back to 1/1/2000, using the methodology NERC set forth in Calculating Extreme Cold Weather Temperature (Sept. 2022) using NOAA's climate data tool. For example, there were multiple instances of 5-years of missing hourly data for the closest, most reasonable location for a facility. Invenergy supplemented its ECWT calculations with the next nearest available temperature data, which was sometimes hundreds of miles away from the facility's location. Temperatures that are hundreds of miles away from a location can be drastically different than those at the site, thus skewing the ECWT. Invenergy recognizes that the Technical Rationale document states "If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility." However, given the frequency of unreliable or insufficient data available in the sources that NERC has suggested, it would be helpful to have further guidance on best practices for calculating a facility's ECWT to avoid having to utilize hourly temperatures for areas far distant from a facility, or alternative methodologies from those presented in Calculating Extreme Cold Weather Temperature (Sept. 2022).

Likes 0	
Dislikes 0	

Response

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer	
Document Name	

Comment

EEI offers the following comments for consideration:

EEI has concerns with the proposed CAP criteria language in EOP-012-2. The current CAP criteria could be understood to require performance that exceeds the specifications in EOP-002-2 and should be clarified. While it is reasonable to require Generator Owners to reconsider and re-calculate their Extreme Cold Weather Temperature (ECWT) at the proposed intervals, it is not reasonable to expect that GOs can financially sustain the burdens of endless CAPs associated with Generator Cold Weather Reliability Event that exceed the defined criteria due to extended periods of sustained cooling. For example, systems designed to the specified design criteria, conforming to the defined ECWT, specified duration and associated cooling effects of the defined wind speed, may ultimately trip offline even in instances where the temperature has risen above the ECWT after the 12 hour design criteria but due to the duration of the event the system ultimately fails. This does not mean that the mitigations were faulty, the criteria was not met, or a CAP is needed. Rather, the long term conditions that the resource was subjected to exceeded the specification. Moreover, units could conceivably experience additional extreme events that could result in additional Generator Cold Weather Reliability Event before even completing the CAP for the previous event. Without addressing this issue, GOs will be faced with a situation that could result in endless CAPs, creating disincentives to building needed new generation and potentially increase early retirement of resources. To address this concern, we offer the following proposed changes to the Generator Cold Weather Reliability Event (changes in boldface):

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control **that conforms to the design conditions as set forth in this Standard (i.e., wind and temperature):**

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time;

or

(3) a Forced Outage.

If one or more of the these three (3) events occurs after more than 12 continuous hours of operation, demonstrating generator performance at or exceeding the design conditions as set forth in this Standard, it shall not be considered a Generator Cold Weather Reliability Event.

Generator Cold Weather Constraints: EEI understands that many of our member companies have concerns regarding how to effectively utilize the defined constraints due to the language as currently written.

EEI is concerned that Requirement R5 is not specific enough and could create potential compliance risks for entities that employ OEM contractors to support certain maintenance and/or operations activities. Given these contractors are often not dedicated contract personnel but are deployed on-demand and often represent a very large pool of personnel not under the direct control of the responsible Generator Operator, training of those contractors is often impractical. To address this concern, EEI offers the following proposed changes to Requirement R5 (changes in boldface):

Each Generator Operator or Generator Owner will have documented evidence that the applicable **Generator Operator and/or Generator Owner personnel staff and/or dedicated on-site full time contractors** completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5. **On demand contractors used for emergency services, not normally on site, are exempt from this training requirement.**

EEI asks that the SDT support the proposed changes to EOP-012-2 with Implementation Guidance. During both NERC webinars and EEI meetings with its members and the Project 2021-07 Standards Drafting Team, it was clear that many concerns, once explained, were found to be generally acceptable. For this reason, a broader sharing and expounding of SDT insights on the proposed changes may better ensure broader Industry acceptance of the proposed changes.

EEI also asks the SDT to consider making some non-substantive changes to Requirement R7, subpart 7.4 in order to clarify what is required when claiming a Generator Cold Weather Constraint based on a CAP. (Proposed changes in boldface below)

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.4 Document in a **dated** declaration, with **supporting** justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each CAP, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each CAP and the completion of actions for each CAP including revision history of each CAP. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

Likes 0	
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	
Document Name	

Comment

If a generating unit is located inside the powerhouse, and the powerhouse is heated in winter, will the generating unit components be considered as Generator Cold Weather Critical Components?

For example, the unit’s Extreme Cold Weather Temperature is -40 degrees Fahrenheit (-40 degrees Celsius). However, the unit is located in the powerhouse that is heated to 68 degrees Fahrenheit (20 degrees Celsius) in winter. Will the generating unit components be considered as Generator Cold Weather Critical Components? Will Requirements R2 and R3 be applicable to this unit?

Requirement R4.4 is not applicable if the unit is inside the powerhouse.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	
Document Name	

Comment

AES CE strongly recommends the drafting team to consider creating an implementation guidance or a CMEP Practice Guide to ensure consistency in approaches to meeting the new standard and requirements. Additionally, AES CE recommends that the drafting team make necessary corresponding changes for the BA to ensure that they have to perform their part in requesting the necessary data and utilizing the data to perform reliability assessments.

AES CE also would like to request that the drafting team provide clarifications (through Technical Rationale) on whether wind repowering projects that will reach COD after 10/1/2027 are considered new projects.

AES CE has concerns with the proposed CAP criteria language in EOP-012-2. The current proposed CAP process imposes a significant burden (both financially and operationally) to entities. It is not reasonable to expect that GOs can sustain the burdens of endless CAPs associated with Generator Cold Weather Reliability Event that exceed the defined criteria due to extended periods of sustained cooling. For example, systems designed to the specified design criteria, conforming to the defined ECWT, specified duration and associated cooling effects of the defined wind speed, may ultimately trip offline even in instances where the temperature has risen above the ECWT after the 12 hour design criteria but due to the duration of the event the system ultimately fails. This does not mean that the mitigations were faulty, the criteria was not met, or a CAP is needed. Rather, the long term conditions that the resource was subjected to exceeded the specification. Moreover, units could conceivably experience additional extreme events that could result in additional Generator Cold Weather Reliability Event before even completing the CAP for the previous event. Without addressing this issue, GOs will be faced with a situation that could result in endless CAPs, creating disincentives to building needed new generation and potentially increase early retirement of resources.

Additionally, AES CE is concerned that Requirement R5 is not specific enough and could create potential compliance risks for entities that employ OEM contractors to support certain maintenance and/or operations activities. Given these contractors are often not dedicated contract personnel but are deployed on-demand and often represent a very large pool of personnel not under the direct control of the responsible Generator Operator, training of those contractors is often impractical. AES CE proposes either explicitly exclude non-dedicated on-site contractors in the requirement language or provide guidance (in Implementation Guidance) that non-dedicated on-site contractors are excluded.

Likes 0	
Dislikes 0	

Response

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer	
Document Name	

Comment

Measure M3 lists only a single example of acceptable evidence and does not say that there are alternative evidence measures, just previous operating time below the ECWT.

Likes 0	
Dislikes 0	

Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE seeks clarity on the first provision in the definition of Generator Cold Weather Reliability Event. Does this provision refer to a total of 20 MW or greater for 4 hours? Will this be cumulative? For example, if a 50 MW unit derates by 15% of its capacity during the last hour of the 4 hours duration, will it be acceptable? Texas RE is concerned this provision could be misinterpreted to assume that as long as the capacity reduction for each of the 4 hour duration is less than 20 MW, there's no compliance issues. This could exclude all generators rated 199MW or lower. Is that the SDT's intent? Texas RE understands that Requirements R2 and R3 indicate that if an entity does not self-commit, it does not need to have freeze protection measures. Texas RE is concerned this could lead to an unintended consequence of entities choosing to not self-commit and simply awaiting a directive to deploy. This could lead to artificial capacity shortfalls driven solely by compliance considerations. Texas RE requests that the SDT clarify the language in Requirements R2 and R3 to avoid this possible result.	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	
Document Name	
Comment	
SIGE supports Edison Electric Institute's recommendation for the Standard Drafting Team to develop Implementation Guidance.	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	

Document Name	

Comment

The SRC provides the following additional comments for the drafting team to consider.

Revise Requirements R2, R3, and R6 to Better Align with FERC's Mandate and Provide Additional Clarity

The SRC does not read Requirements R2, R3, and R6 to satisfy FERC's mandate that the standard's applicability "exclude only those generation resources not relied upon during freezing conditions." In footnotes 1, 2, and 4 the proposed standard explicitly exempts many units that might run only during emergency conditions. By definition, those units would be "relied upon during freezing conditions," and under the language of the FERC mandate, should be required to meet the standard's requirements. **The SRC recommends removing these footnotes.** The SRC further suggests revising "self-commits or that is required to operate" in R2, R3, and R6 to read "that may be committed to operate" to avoid ambiguity about whether a unit that is available to run but that has not run since the effective date of the standard would be required to meet the requirements of R2, R3, and R6.

Clarify the Definition of Generator Cold Weather Reliability Event

The SRC is concerned that the proposed definition of Generator Cold Weather Reliability Event is ambiguous and does not capture all cold weather reliability events that should be addressed under EOP-012.

First, the SRC is concerned that the four-hour duration threshold in paragraph (1) of the proposed definition will mask a situation where a generating unit repeatedly starts and trips offline or starts and significantly ramps its output up and down within a four-hour period due to inadequate weatherization. During an extreme cold weather event, the inability of a generating unit to reliably **sustain** its output level for a long duration of time is highly detrimental to the overall stability of the BES. However, the four-hour threshold in paragraph (1) would inadvertently create an unreasonably large safe harbor for units that are unable to run consistently or maintain a consistent output due to a failure to properly weatherize. To address this issue, the SRC recommends that paragraph (1) be revised to read as follows: "a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MW, for 30 minutes or more in duration three or more times during the winter season."

Second, the phrase "specified start-up time" in paragraph (2) of the proposed definition does not provide any consistency in how the start-up time is to be applied by individual resources. To address this issue, the SRC recommends that paragraph (2) be revised to provide that a start-up failure consists of a failure to start after one or more attempts.

Confirm that Generator Cold Weather Constraint Declarations are Intended to be Used Infrequently

It is the SRC's understanding that Generator Cold Weather Constraint declarations are intended to be a seldom-used tool rather than a commonly adopted compliance measure. The SRC recommends that this expectation be memorialized in EOP-012 if possible or in the technical rationale for EOP-012, similar to the way that the Guidelines and Technical Basis for PRC-004-6 indicate that "a declaration that no further corrective actions will be taken is expected to be used sparingly."

Monitor the Effectiveness of the ECWT Calculation on Cold Weather Performance

As the ECWT determines the level at which freeze protection measures must be implemented, the effectiveness of EOP-012 at reducing reliability risk associated with extreme cold weather is tied to this determination. The SRC requests NERC monitor the effectiveness of the ECWT calculation by requiring GOs to report their ECWT calculations to NERC annually. Additionally, the SRC recommends that EOP-012 provide as much specificity and standardization as possible regarding how the ECWT is to be calculated and which data sources should be used for the calculations. This will help ensure consistency in how ECWTs are calculated and in the data that is used for the calculations. It will also increase the auditability of ECWT calculations.

The SRC remains concerned that the ECWT as currently defined results in a temperature that does not adequately capture extreme cold weather temperatures and other freeze-related conditions, such as wind chill and precipitation, that a generating resource will need to address in its freeze protection measures. The SRC's proposals in its responses to questions 2 and 3 of this comment form are intended to help address this concern.

As the ECWT sets the temperature at or above which generating units must be capable of operating to avoid having to add new or modify existing freeze protection measures under EOP-012, the SRC is concerned that opportunities to improve unit reliability and weatherization effectiveness will be missed due to the clemency in temperature at which GOs will be required to perform or develop a CAP. Past extreme cold weather events have included a substantial number of hours when the dry bulb temperature was below the ECWT. The SRC simply seeks to ensure that GOs, the ERO, and equipment manufacturers are provided with the data and transparency necessary to take full advantage of the lessons that can be learned from evaluating and analyzing performance issues at temperatures below the ECWT. This information would be useful to other GOs and to FERC and the ERO as they monitor whether this standard effectively accomplishes the reliability goals set forth in the Winter Storm Uri report. Imposing the monitoring and reporting requirements recommended by the SRC will provide the information needed to evaluate the effectiveness of the ECWT and provide an indicator as to when and if any future revisions to the ECWT calculation need to be made.

Revise Requirement R1 to Require Calculation of the ECWT Annually instead of Every Five Years

In order to ensure that the information relied upon to prepare generating units for extreme cold weather remains up to date, the SRC proposes that Requirement R1 be revised to require that the ECWT be calculated at least annually rather than every five years. Once the GO has established a calculation process, it should be fairly straightforward to update the calculations every year. Requiring the GO to calculate the ECWT only once every five years dramatically extends the amount of time it will take to realize incremental reliability improvements that may result from changes in the ECWT, as it could be as long as five years plus the amount of time needed to implement the associated CAP before an incremental reliability improvement is discovered and implemented.

Clarify Ambiguities in Requirement R1

The language proposed in Requirement R1, Part 1.1.1 would require a GO to develop a CAP when an update to the ECWT indicates that a unit would not be able to comply with R2 or R3. It is unclear whether this is intended to be separate from the CAPs that R2 and R3 contemplate. The SRC recommends that Part 1.1.1 be clarified to either specify how the CAP referenced in Part 1.1.1 differs from the R2 and R3 CAPs and the effect that the Part 1.1.1 CAP has on an entity's obligations under the standard, or to specify that Part 1.1.1 sets a deadline for the development of CAPs under R2 and R3 rather than referring to a separate CAP.

R1, Part 1.2.2 requires a GO to identify its "[g]enerating unit minimum . . . current cold weather performance temperature." The purpose of the word "current" in this phrase is unclear. The SRC suggests striking that word.

Revise Requirement R4 to Require More Frequent Inspection and Maintenance Activity

The SRC recommends that Requirement R4, Part 4.5 be revised to require inspections and maintenance to occur immediately prior to and monthly during the winter months in order to ensure that freeze protection measures are inspected at the times when they are most likely to be relied upon.

Clarify Requirement R7 and Shorten Timelines for CAP Implementation

The SRC also proposes to further clarify the language regarding CAPs in Requirement R7. As proposed, the SRC reads Part 7.1.1 to require a GO to "[s]pecify action(s) that address(es) existing equipment or freeze protection measures" and to implement those within 24 months, while Part 7.1.2 requires a GO to "[s]pecify action(s) that require(s) new equipment or freeze protection measures" and implement those within 48 months. However, because some corrective actions may address existing equipment and also require new measures, these categories are not necessarily mutually exclusive, and an ambiguity could therefore arise regarding the appropriate timeline that would apply in such a case. The SRC presumes that the CAP implementation timeline should depend on whether new equipment is required to be installed, and not on whether the CAP "addresses" existing equipment or measures. Regarding the timeline, new "measures" that don't require new equipment would not seem to require more than a year to complete, while new equipment should not require more than two years in the vast majority of cases. Therefore, the proposed 24- and 48-month timelines seem excessive.

The SRC suggests the following revised language for R7, Parts 7.1.1 and 7.1.2:

7.1.1 Specify each corrective action that does not require the installation of new equipment, which actions must be completed within 12 months of development of the Corrective Action Plan; and

7.1.2 Specify each corrective action that requires the installation of new equipment, which actions must be completed within 24 months of development of the Corrective Action Plan.

To help further ensure that CAP updates under R7, Part 7.3 are not overused, the SRC also recommends that Part 7.3 be revised to clarify that the standard of review for a CAP update is whether the update has a reasonable justification. The SRC recommends that Part 7.3 be revised to read as follows: "Update the Corrective Action Plan, with justification, if corrective action(s) reasonably change or timetable(s) reasonably require the GO to exceed the timelines in Part 7.1."

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	
Document Name	

Comment

For the “Fixed Fuel Supply Component” definition, we suggest adding additional wording (see below). Nuclear Plants have diesel fuel that is not needed for or related to providing power to the generating unit. It is safety related, and not a BES component.

“Fixed Fuel Supply Component - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit ***for the purpose of generating power*** *and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner’s control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.”*

For Requrement R1:

- We suggest making the frequency every five calendar years to provide some flexibility to the GOs.

- More clarity is needed regarding the recalculation of ECWT every five years. Should each recalculation factor in data back to 1/1/2000, or just the five year period prior to the recalculation?

- Six months is not sufficient time after the recalculation to update a cold weather preparedness plan or develop a Corrective Action Plan for a nuclear plant site due to the level of reviews involved. We suggest a 12 month period.

For Requirement R3:

The revision to Requirement R3 (existing generation) has removed the time constraint. Instead of stating that the plant must be able to operate at ECWT for at least an hour, it now states that if unable to operate at ECWT a CAP must be created. It is very likely that some existing generation will not be able to continuously operate at ECWT no matter what upgrades are performed on them. Usually standards are sticter for newer sites, but if a new site must be able to operate for at least 12 hours at ECWT but an existing site has no limit, the requirement is stricter for existing units.

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	
Document Name	

Comment

There are too many changes to this cold weather standard too soon. The industry needs to catch up and work on the preious versions before we are ready for incorporating new requirements and obligations in our businesses.

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	

Document Name	

Comment

Extreme Cold Weather Temperature: The flexibility and intent behind using the “lowest 0.2 percentile” is greatly appreciated; however, the requirement to use a fixed start date seems a bit excessive. By using a fixed start date, the data set will grow by 10,824 data points every 5 years when the ECWT is recalculated.

Given the inherent difficulty of compiling a data set containing greater than 52,000 data points and then calculating the lowest 0.2 percentile, we recommend modifying the definition to remove the requirement to use a fixed data start date of 01/01/2000.

Our proposed modification to the definition would be: “The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from the previous 20 years immediately prior to the date the temperature is calculated. “

R4.1 (footnote 3): By including the stipulation that the GO shall “include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature” in a footnote, the SDT is setting the GO up for failure. If it is the intent of the SDT to require the GO to keep records of each ECWT calculation performed by the entity to ensure the lowest value is always captured, then this language should be included in a Requirement and not in the footnotes.

R5: Regarding the proposed verbiage requiring “generating unit-specific training”, it is our opinion that this could be overly burdensome for stations with multiple units; particular for those stations with multiple units of a similar design (a.k.a. “sister” units). Recommend modifying this requirement to require station-specific training in lieu of generating unit-specific training.

It is our opinion that this modification will allow the GO/GOP the flexibility to develop their training modules with an appropriate level of detail to sufficiently train station personnel without requiring them to create multiple modules with similar or identical content.

R6. Concerning the proposed timeline for the development of a CAP, it is our recommendation that the July 1st date be removed from this requirement. The rationale for this recommendations is thus: 150 days prior to July 1st is Feb 1st for non-leap years and Feb 2nd for leap years. Moreover, the July 1st timeline is further condensed if a Generator Cold Weather Reliability Event (GCWRE) occurs in March or April. Lastly, the stated intent of the timeframe options within the Technical Rationale is to allow GOs to review multiple events holistically following a winter season. In certain areas of the country, a GCWRE could realistically occur as early as late-October. In this instance, the latest possible date for the development of a CAP would be March 30th.

Given that it is also realistic for a GCWRE to occur in March, 150 days seems a reasonable number of days to cover all but the most extreme scenarios. Therefore, we recommend removing the hard deadline of July 1st.

Thank you for the opportunity to comment.

Likes 0	
Dislikes 0	

Response

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	
Document Name	

Comment

During the last presentation NERC stated that “Water” at a hydro facility is not considered fuel, however, previous presentations included water as fuel, this should be clearer as to what is considered fuel for renewable sources or exclude renewables from the clause. R3 should be expanded to provide guidance on how to demonstrate a unit is capable of operating at/below ECWT. Cold Weather Event with a number of units on economic reserve, who dictates the “start-up failure within a specified time”? And where would that be documented?

Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Consideration of Comments

Project Name:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 - Draft 1 - EOP-012-2
Comment Period Start Date:	6/5/2023
Comment Period End Date:	7/20/2023
Associated Ballot(s):	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll IN 1 NB 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 IN 1 ST 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 IN 1 OT

There were 79 sets of responses, including comments from approximately 177 different people from approximately 119 companies representing 10 of the Industry Segments as shown in the table on the following pages.

All comments submitted can be reviewed in their original format on the project page.

If you feel that your comment has been overlooked, let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, contact Vice President of Engineering and Standards, Soo Jin Kim (via email) or at (404) 446-9742.

Questions

See the unofficial comment form for additional information:
https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

1. Do you agree that the proposed definition of Generator Cold Weather Constraint provides additional clarity to the requirements on EOP-012-2, is auditable and meets the directive in the FERC Order in the most effective way? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

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2. Do you agree that the proposed Requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data per Key Recommendation 1c? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

3. Do you agree that the proposed date of October 1, 2027 is an appropriate time frame for units that enter commercial operation after this date to implement the enhanced cold weather requirements that are contained within Requirement R2? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

4. The SDT structured R2.1 and R2.2 in the vein of an if/then statement. The intent being, if a GO implements R2.1, then they would be compliant with Requirement R2. If a GO does not implement R2.1 but implements R2.2, then they would be compliant with Requirement R2. Stated differently, a GO would only risk non-compliance with Requirement R2 if they did neither R2.1 nor R2.2. Does the proposed language, as drafted by the SDT, provide that clarity and reflect the SDT's intent as stated above? If not, please provide suggested clarifying language.

5. The SDT proposes two timeframes, 24 months for addressing existing equipment or freeze protection and 48 months for implementing new equipment or freeze protection, for Corrective Action Plans in Requirement R7. Do you agree that the timeframes proposed are appropriate? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

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6. Do you agree that Requirement R8 is sufficient to inform the Balancing Authority of the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical or procedural justification.

See the unofficial comment form for additional information:
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7. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

8. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical or procedural justification.

9. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations, Regional Entities

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF
					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
Santee Cooper	Don Cribb	5		Santee Cooper	Paul Camilletti	Santee Cooper	1,3,5,6	SERC
					Mark Taylor	Santee Cooper	1,3,5,6	SERC
Jennie Wike	Jennie Wike		WECC	Tacoma Power	Jennie Wike	Tacoma Public Utilities	1,3,4,5,6	WECC
					John Merrell	Tacoma Public Utilities (Tacoma, WA)	1	WECC
					John Nierenberg	Tacoma Public Utilities (Tacoma, WA)	3	WECC
					Hien Ho	Tacoma Public Utilities (Tacoma, WA)	4	WECC
					Terry Gifford	Tacoma Public Utilities (Tacoma, WA)	6	WECC
					Ozan Ferrin	Tacoma Public Utilities (Tacoma, WA)	5	WECC

ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Bill Pezalla	Old Dominion Electric Cooperative	3,4	RF
					Jennifer Bray	Arizona Electric Power Cooperative, Inc.	1	WECC
					Sara Orr	Golden Spread Electric Cooperative, Inc.	5	Texas RE
					Chris Adams	East Kentucky Power Cooperative	3	SERC
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Nick Fogleman	Prairie Power, Inc.	1	SERC
					Austin Towne	Western Farmers Electric Cooperative	1,5	MRO
MRO	Jou Yang	1,2,3,4,5,6	MRO	MRO NSRF	Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Chris Bills	City of Independence, Power and Light Department	5	MRO
					Fred Meyer	Algonquin Power Co.	3	MRO
					Christopher Bills	City of Independence Power & Light	3,5	MRO
					Larry Heckert	Alliant Energy Corporation Services, Inc.	4	MRO
					Marc Gomez	Southwestern Power Administration	1	MRO

					Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	MRO
					Bryan Sherrow	Board of Public Utilities	1	MRO
					Terry Harbour	Berkshire Hathaway Energy - MidAmerican Energy Co.	1	MRO
					Terry Harbour	MidAmerican Energy Company	1,3	MRO
					Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Shonda McCain	Omaha Public Power District	6	MRO
					George E Brown	Pattern Operators LP	5	MRO
					George Brown	Acciona Energy USA	5	MRO
					Jaimin Patel	Saskatchewan Power Cooperation	1	MRO
					Kimberly Bentley	Western Area Power Administration	1,6	MRO
					Jay Sethi	Manitoba Hydro	1,3,5,6	MRO
					Michael Ayotte	ITC Holdings	1	MRO
Entergy	Julie Hall	6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC

Electric Reliability Council of Texas, Inc.	Kennedy Meier	2		ISO/RTO Council Standards Review Committee (SRC)	Bobbi Welch	Midcontinent ISO, Inc.	2	NA - Not Applicable
					Darcy O'Connell	California ISO	2	WECC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Kennedy Meier	Electric Reliability Council of Texas, Inc.	2	Texas RE
					Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	NA - Not Applicable
					Thomas Foster	PJM Interconnection, L.L.C.	2	RF
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy-FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF

Michael Johnson	Michael Johnson		WECC	PG&E All Segments	Marco Rios	Pacific Gas and Electric Company	1	WECC
					Sandra Ellis	Pacific Gas and Electric Company	3	WECC
					Frank Lee	Pacific Gas and Electric Company	5	WECC
Southern Company - Southern Company Services, Inc.	Pamela Hunter	1,3,5,6	SERC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Jim Howell, Jr.	Southern Company - Southern Company Generation	5	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
Patricia Robertson	Patricia Robertson		WECC	BC Hydro Balloters	Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC
					Jeffrey Streifling	NB Power Corporation	1	NPCC

					Michele Tondalo	United Illuminating Co.	1	NPCC
					Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
					Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
					Randy Buswell	Vermont Electric Power Company	1	NPCC
					James Grant	NYISO	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
					Randy MacDonald	New Brunswick Power Corporation	2	NPCC
					Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
					David Burke	Orange and Rockland	3	NPCC
					Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
					Salvatore Spagnolo	New York Power Authority	1	NPCC
					Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
					David Kwan	Ontario Power Generation	4	NPCC

					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Sean Cavote	PSEG	4	NPCC
					Jason Chandler	Con Edison	5	NPCC
					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					John Hastings	National Grid	1	NPCC
					Michael Jones	National Grid USA	1	NPCC
					Joshua London	Eversource Energy	1	NPCC
Ryan Strom	Ryan Strom		RF	Buckeye Power Group	Carl Spaetzel	Buckeye Power, Inc.	3	RF
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Kevin Zemanek	Buckeye Power, Inc.	5	RF

Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC
					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC

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1. Do you agree that the proposed definition of Generator Cold Weather Constraint provides additional clarity to the requirements on EOP-012-2, is auditable and meets the directive in the FERC Order in the most effective way? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Tacoma Power agrees that the SDT's approach to create definitions of technical, commercial and operational constraints addresses the FERC Order criteria. However, Tacoma Power does not agree that the proposed definitions are clear and auditable. Additional clarification is needed for entities to understand the scope of what's included in these constraints.

For example, the "surrounding environment" in the Operational Constraint definition can be interpreted in different ways. Does the SDT mean "surrounding environment" to include EPA emission limits, FERC limits on water levels, or agreements with local tribal authorities? Tacoma Power recommends adding environmental examples for the Operational Constraint criteria in the Technical Rationale, as follows: "*Operational Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction in summer capability,* ***EPA emission limits, FERC water level limits, agreements with local authorities,*** *etc.*"

Tacoma Power is concerned that the Technical Constraints definition is creating a situation where an Entity and an auditor will disagree as to who determines whether there are technology solutions that exist. Tacoma Power recommends that the definition should be modified to state "*...as determined by the applicable Entity*" to ensure it's clear that the responsibility is with the Entity to determine the technology solutions.

Likes 2	Luminant - Luminant Energy, 6, Ferrell Russell; Platte River Power Authority, 3, Kiess Richard
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Thomas Foltz - AEP - 5

Answer	No
Document Name	

Comment

AEP agrees in principle with the overall direction of the SDT in Phase II of Project 2021-07, and offers the following comments and feedback for consideration.

AEP does not believe that the definition of Commercial Constraint is clear. It is our understanding that it is not the SDT's intent to require that significant expense be invested in units with a limited remaining life, however the team has also stated that they might still want "less significant investments" made as a result of a Cold Weather Event. Without a clear definition, it might appear that some in industry are choosing economics over reliability, even if that is not actually the case. While AEP agrees with the intent of the constraint and the spirit in which it was drafted, we do not believe the language of the constraint and definition currently articulates their intent.

AEP recommends that the definition of Commercial Constraint be revised as follows: "A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require unreasonably expensive modifications, significant expenditures on equipment with minimal remaining life, or significant expenditures to change the equipment's original design basis to meet the requirements."

AEP also provides the following questions and scenarios for consideration.

* Does the phrase "… generating unit not operating…" mean the unit will be retired or the unit is not selected to participate in the market due to the unit's operating cost?

* Regarding the phrase "…into service at the time of evaluation." Is this when the freeze protection measure(s) are being evaluated for implementation, or instead, is it when a unit is committing to participate in the day ahead market?

* In the situation where a unit is within a few years of retirement and it has a cold weather event requiring a significant investment, does the GO have the ability to make a declaration to not invest the dollars in that unit? Either way, the present language does not provide this clarity.

* The phrase "limit its operation" within the definition of Operational Constraint is not clear, and renders the definition ineffective. Does the phrase perhaps infer a limitation of generation output?

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

There should also be some allowance for processes or procedures to mitigate constraints that allow a generating owner or operator to not install or implement protection measures in areas where historically they have not been needed. For instance water can freeze in a cooling tower basin but the process requires constant circulation of water or constant flow of water in the basn as the mitigating option. As we read the standard we would be required to put heaters or enclosures on the cooling tower basin to eliminate all possible chance of water to freeze within the basin. However this would be unrealistic and would not allow the cooling tower basin, pumps, etc to work as intended.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

Technical Constraint declarations would be subject to opinions as to what is proven versus unproven. There is a no objective, auditable means of making decisions in this respect, and conservatism requires accommodating the outlook of the equipment owners. They should not have to subject their very expensive, very important generation units to retrofits of an experimental nature.

The only way to prove a Commercial Constraint would be a financial study that shows the cost is greater than the market can bear. To do such a study, there are many inputs that would be arguable. NERC auditors do not have the information necessary to pass judgment in this respect.

NERC says moreover in its Rules of Procedure, part 3 of sect. 302 (Essential Attributes for Technically Excellent Reliability Standards), "Each Reliability Standard shall state one or more performance Requirements, which if achieved by the applicable entities, will provide for a reliable Bulk Power System, consistent with good utility practices and the public interest. Each Requirement is not a 'lowest common denominator' compromise, but instead achieves an objective that is the best approach for Bulk Power System reliability, taking account of the ***costs and benefits*** [emphasis added] of implementing the proposal." It is unreasonable to demand that retrofits be applied unless they are so overwhelmingly expensive that they drive the GO out of business. This is not a cost-benefit analysis.

The entire thrust of EOP-012 on this subject is inappropriate. Existing units were built in accordance with all rules and regulations, including those of NERC and ISOs, who were fully aware of the importance of wintertime reliability. GOs should not be expected to now retrofit or re-engineer the units to meet the expectation to perform to a new level without the regulators being willing to pay for these upgrades.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

There should also be some allowance for processes or procedures to mitigate constraints that allow a generating owner or operator to not install or implement protection measures in areas where historically they have not been needed. For instance water can freeze in a cooling tower basin but the process requires constant circulation of water or constant flow of water in the basn as the mitigating option. As we read the standard we would be required to put heaters or enclosures on the cooling tower basin to eliminate all possible chance of water to freeze within the basin. However this would be unrealistic and would not allow the cooling tower basin, pumps, etc to work as intended.

Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	No
Document Name	

Comment

PGAE agrees and supports the NAGF comments.

Likes 0	

Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	No
Document Name	

Comment

MRO NSRF agrees that the SDT's approach to create definitions of technical, commercial and operational constraints addresses the FERC Order criteria. However, MRO NSRF does not agree that the proposed definitions are clear and auditable. Additional clarification is needed for entities to understand the scope of what's included in these constraints.

For example, the "surrounding environment" in the Operational Constraint definition can be interpreted in different ways. Does the SDT mean "surrounding environment" to include EPA emission limits, FERC limits on water levels, or agreements with local tribal authorities? MRO NSRF recommends adding environmental examples for the Operational Constraint criteria in the Technical Rationale, as follows: "*Operational Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction in summer capability,* ***EPA emission limits, FERC water level limits, agreements with local authorities,*** *etc.*"

MRO NSRF is concerned that the Technical Constraints definition is creating a situation where an Entity and an auditor will disagree as to who determines whether there are technology solutions that exist. MRO NSRF recommends that the definition should be modified to state "*…as determined by the applicable Entity*" to ensure it's clear that the responsibility is with the Entity to determine the technology solutions.

Similarly, MRO NSRF is concerned about the auditability of Commercial Constraints. Including language as recommended above, *"…as determined by the applicable Entity",* would help to alleviate these concerns.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	No
Document Name	

Comment

The proposed language is focused too much on Thermal Generation, and doesn't consider Hydro facilities that are designed to operate in cold weather. Small hydro entities which are designed to operate in cold weather will have a compliance responsibility that will become administrative risks to this standard. This will raise the risk of non-compliance for these entities, even though reliability will not be enhanced.

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas

Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	No
Document Name	
Comment	
SMUD and BANC agree with the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
Although the definitions of the various constraints offer increased clarity on inclusion criteria, these are still problematic. The Technical constraint would be subject to opinions as to what is proven versus unproven and appears to be exclusive to OEM type making it problematic	

and restrictive. As far as the commercial constraint is concerned, this would require considerable financial study that would be based upon the individual company's business model. This will differ from company to company depending upon financial risk matters as well as change with industry economic trends. NRG does not believe that the constraints can be objectively audited- auditors are not financial experts. NRG offers this suggestion that a standardized process instituted to evaluate criteria (based upon certain parameters) and accepted prior to implementation to prevent inequality in evaluation. Overall these constraints should be defined clearer and examples provided as to what would be acceptable.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	No
Document Name	

Comment

Although the definitions of the various constraints offer increased clarity on inclusion criteria, these are still problematic. The Technical constraint would be subject to opinions as to what is proven versus unproven and appears to be exclusive to OEM type making it problematic and restrictive. As far as the commercial constraint is concerned, this would require considerable financial study that would be based upon the individual company's business model. This will differ from company to company depending upon financial risk matters as well as change with industry economic trends. NRG does not believe that the constraints can be objectively audited- auditors are not financial experts. NRG offers this suggestion that a standardized process instituted to evaluate criteria (based upon certain parameters) and accepted prior to implementation to prevent inequality in evaluation. Overall these constraints should be defined clearer and examples provided as to what would be acceptable.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Buckeye supports the comments of ACES:

We appreciate the effort that the SDT put into drafting the objective Generator Cold Weather Constraint criteria as directed by FERC. However, it is our opinion that the proposed definition still contains a bit of ambiguity that needs to be addressed.
Consider the proposed definition of a Technical Constraint. The last sentence states: "Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES." How is the GO to know how long a technology must be "demonstrated" in order for the timeframe to be considered "sufficient"?
Lastly, while the definition of Commercial Constraint is not ambiguous, it does set a very high bar. We appreciate that this is a difficult term to

clearly define; however, under the currently proposed definition, the GO could potentially incur a significant financial impact without reaching the threshold that would preclude the generating unit from operating.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy agrees that the SDT’s approach to create definitions of technical, commercial and operational constraints addresses the FERC Order criteria. However, NV Energy does not agree that the proposed definitions are clear and auditable. Additional clarification is needed for entities to understand the scope of what’s included in these constraints. For example, the “surrounding environment” in the Operational Constraint definition can be interpreted in different ways. Does the SDT mean “surrounding environment” to include EPA emission limits, FERC limits on water levels, or agreements with local tribal authorities? NV Energy recommends adding environmental examples for the Operational Constraint criteria in the Technical Rationale, as follows: “Operational	

Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction in summer capability, EPA emission limits, FERC water level limits, agreements with local authorities, etc.”

NV Energy is concerned that the Technical Constraints definition is creating a situation where an Entity and an auditor will disagree as to who determines whether there are technology solutions that exist. NV Energy recommends that the definition should be modified to state “...as determined by the applicable Entity” to ensure it’s clear that the responsibility is with the Entity to determine the technology solutions.

Similarly, NV Energy is concerned about the auditability of Commercial Constraints. Including language as recommended above, “...as determined by the applicable Entity”, would help to alleviate these concerns.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC comments. Additionally, ISO-NE would support the removal of "Commercial Constraint" from the definition of Generator Cold Weather Constraint and if a Generator desired to declare a commercial constraint due to cost or economics, they should utilize the proper filing process for relief as outlined in the NERC Rules of Procedure. This would be consistent with the filing process utilized for the IROL-CIP required upgrades.

Likes 0	
Dislikes 0	

Response
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment
Minnesota Power supports the North American Generator Forum's (NAGF) comments.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

The NAGF does not agree with the proposed definition of Generator Cold Weather Constraint. We agree that the proposed definition does provide more clarity. However, the NAGF questions the auditability of the language used in the commercial and technical constraints.

The language used under a Technical Constraint would be subject to opinions as to what is proven versus unproven. The NAGF recommends that GOs should not have to install any cold weather reliability technologies other than those offered by the generation unit OEM or certified by them to ensure no warrantee related issues. GOs could otherwise be required to subject their generation units to retrofits of an experimental nature.

It would appear that the only way to prove a Commercial Constraint would be to develop a financial study that determines the cost of freeze protection upgrades is greater than the market can bear. To do such a study, there are many proprietary inputs needed that would be subject to review/audit, depending on who is performing the study. NERC auditors do not have the expertise necessary to opine on the validity of such a study, nor do they have information available to them to question such a study.

NERC states in its Rules of Procedure, part 3 of sect. 302 (Essential Attributes for Technically Excellent Reliability Standards), "Each Reliability Standard shall state one or more performance Requirements, which if achieved by the applicable entities, will provide for a reliable Bulk Power System, consistent with good utility practices and the public interest. Each Requirement is not a 'lowest common denominator' compromise, but instead achieves an objective that is the best approach for Bulk Power System reliability, taking account of the ***costs and benefits*** [emphasis added] of implementing the proposal." The NAGF believes that it is unreasonable to demand that retrofits be applied unless they are so overwhelmingly expensive that they drive the GO out of business. Existing units were built in accordance with all rules and regulations, including those of NERC and ISOs, who were fully aware of the importance of wintertime reliability. GOs should not be expected to now retrofit or re-engineer the units to meet the expectation to perform to a new level without a cost recovery mechanism in place to pay for these upgrades.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Colin Chilcoat - Invenergy LLC - 6

Answer	No
Document Name	

Comment

The Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	

Enel North America Inc. would like to thank the Standard Drafting Team for its continued efforts on these Cold Weather Reliability Standards. Enel does not agree that the proposed definition of Generator Cold Weather Constraint is auditable because the Technical, Commercial, and Operational Constraint areas currently introduce a wide array of interpretations. For example, within a Technical Constraint it is stated “Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.” A ‘sufficient period of time’ may vary among individual Generator Owners based on the level of risk each is willing to accept from a new technology.

Therefore, Enel recommends an amendment to the Generator Cold Weather Constraint(s) definition to explicitly state the Generator Owner should determine the criteria in which the constraint(s) would be applied.

Likes 0	
Dislikes 0	
Response	

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	

Comment	
AEPC signed on to ACES comments: We appreciate the effort that the SDT put into drafting the objective Generator Cold Weather Constraint criteria as directed by FERC. However, it is our opinion that the proposed definition still contains a bit of ambiguity that needs to be addressed. Consider the proposed definition of a Technical Constraint. The last sentence states: “Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.” How is the GO to know how long a technology must be “demonstrated” in order for the timeframe to be considered “sufficient”? Lastly, while the definition of Commercial Constraint is not ambiguous, it does set a very high bar. We appreciate that this is a difficult term to clearly define; however, under the currently proposed definition, the GO could potentially incur a significant financial impact without reaching the threshold that would preclude the generating unit from operating.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	No
Document Name	

Comment	
The Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	No
Document Name	
Comment	
The metric for uneconomical in commercial constraint should be more specific	
Likes 0	

Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	

Comment

While AES CE agrees that additional clarity is provided in the proposed definition of Generator Cold Weather Constraints, we believe that the definition would still be subject to opinions. As mentioned in the Technical Rationale, the definition is provided in such a way that it leaves room for interpretation. This would present an extensive effort by entities to document a constraint to avoid subjective interpretation by audit teams. We recommend that the SDT develops an implementation guidance or a CMEP Practice Guide in parallel with EOP-012-2 effort to ensure consistent practices by audit teams across all regions in the interpretation of Generator Cold Weather Constraint.

Additionally, AES CE found the capitalized term “Generator Cold Weather Components” listed in the definition of Generator Cold Weather Constraint(s). Currently, we don’t see a definition for “Generator Cold Weather Components”. AES CE is seeking clarification from the Standard Drafting Team on whether this is a new term or an error.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	No
Document Name	

Comment

Southern Indiana Gas & Electric, Company (SIGE) supports the development of the Generator Cold Weather Constraints definition; however, SIGE believes additional clarity is needed. SIGE recommends modifying the Constraints definition to include the statement: “as determined by the applicable Entity” to clarify that the Entity is responsible for determining the technical solution, economic impact, and/or operational impact.

Additionally, the term, “surrounding environment” is not entirely clear – please provide clarification.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	No
Document Name	
Comment	
SRP agrees and supports NV Energy, AEP, and Tacoma Power comments.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
While the ISO/RTO Council (IRC) Standards Review Committee (SRC)[1] agrees that the proposed definition provides some additional clarity and auditability, the SRC urges consideration of the specific revisions proposed below that would better meet the directive in the FERC order and result in a clearer, more auditable Reliability Standard.	

Commercial Constraints – The existing definition of a commercial constraint is overly broad and could lead to the exception swallowing the standard itself. As proposed, a commercial constraint would exist only if it “would result in a generating unit not operating or not being put into service at the time of the evaluation.” It is unclear whether “not operating” is intended to refer to a long-term condition (such as mothballing or retirement) or a short-term condition, such as a decision not to offer a unit on a particular operating day. This definition is extremely elusive as to what would be the reason for the unit ‘not operating’ and consequently raises a host of compliance challenges.

Effectively, the commercial constraint definition would allow a unit owner to claim that a particular winterization task would, in its view, render the unit uneconomical to operate. However, this ability of a unit owner to effectively self-certify that installation of weatherization measures would be uneconomic would provide little in the way of consistency among unit owners and could allow resource owners to prioritize competitive concerns over reliability. Additionally, compliance constraint declarations should be auditable, but auditing a commercial constraint declaration under the current definition would require NERC and the Regions to effectively become economic regulators reviewing and auditing determinations of future market prices, underlying projections of future costs and returns, and a host of related economic analyses. This type of financial and economic auditing and regulation is not part of the appropriate role for NERC or the regional entities.

After engaging in lengthy internal discussions regarding the breadth and subjectivity of the commercial exemption, the SRC has come to the conclusion that the most reasonable way to prevent the commercial constraint exemption from swallowing the standard is to revise the definition such that a GO can only claim a commercial constraint for a resource if it has announced plans to retire that unit. Although retirement decisions can be reversed, a public notification of plans to retire a unit would allow an audit team to confirm the commercial impact to the unit without having to review and audit the underlying economic analyses that the resource owner performed. Such public notices also represent defined notifications that prompt system planners to develop alternatives to the continued operation of the unit. In those instances, little would be accomplished by requiring a unit with an announced imminent retirement date to invest in costly winterization upgrades.

For the above reasons, including the compliance challenges associated with such an open-ended commercial constraint exemption, the SRC urges consideration of this more limited definition of a commercial constraint.

Operational Constraints – To provide additional clarity and auditability, the SRC recommends that "would **cause** the generating unit to limit its operations . . ." be replaced with "would **require** the generating unit to limit its operations . . ." in the definition of an operational constraint. The SRC also recommends that the reference to "the surrounding environment" be removed from the definition of an operational constraint and that language be added specifying that an operational constraint exists "if implementation of selected freeze protection measure(s) would cause a violation of an environmental permit that cannot otherwise be mitigated." This would result in a clearer, more auditable definition of *operational constraint*.

[1] For purposes of these comments, the IRC SRC includes CAISO, ERCOT, IESO, ISO-NE, PJM, MISO, NYISO, and SPP.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Claudine Bates - Black Hills Corporation - 6

Answer	No
Document Name	

Comment

Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational	

Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by the NAGF.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.	

Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
The proposed definition for a "Generator Cold Weather Constraint(s)" contains another capitalized term – Generator Cold Weather Component. Shouldn't this be "Generator Cold Weather Critical Component"? The first sentence under the 'Technical Constraint' sub-bullet is unclear. We suggest the circumstances representing a technical constraint be numbered or bulletized to better distinguish them. For example, *"A technical constraint exists when **1)** there is no known technical solution for addressing the issue, or **2)** implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications."* The description in the 'Operational Constraint' sub-bullet needs further clarity. Is an operational constraint identified ahead of time (as part of Corrective Action Plan development) or in near Real-time during Corrective Action Plan implementation? We offer the following edits for the drafting team to consider if it's an improvement:	

“Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the ***for a*** *generating unit* ***during Real-time operations is expected*** *to limit its operations in order to protect* ***jeopardize*** *either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel* ***safety****.”*

Would an operational constraint declaration related to reliability of the BES require supporting concurrence from either the Balancing Authority, Transmission Operator, or Reliability Coordinator?

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

There should also be some allowance for processes or procedures to mitigate constraints that allow a generating owner or operator to not install or implement protection measures in areas where historically they have not been needed. For instance water can freeze in a cooling tower basin but the process requires constant circulation of water or constant flow of water in the basn as the mitigating option. As we read the standard we would be required to put heaters or enclosures on the cooling tower basin to eliminate all possible chance of water to freeze within the basin. However this would be unrealistic and would not allow the cooling tower basin, pumps, etc to work as intended.

Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

We appreciate the effort that the SDT put into drafting the objective Generator Cold Weather Constraint criteria as directed by FERC. However, it is our opinion that the proposed definition still contains a bit of ambiguity that needs to be addressed.

Consider the proposed definition of a Technical Constraint. The last sentence states: “Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.” How is the GO to know how long a technology must be “demonstrated” in order for the timeframe to be considered “sufficient”?

Lastly, while the definition of Commercial Constraint is not ambiguous, it does set a very high bar. We appreciate that this is a difficult term to clearly define; however, under the currently proposed definition, the GO could potentially incur a significant financial impact without reaching the threshold that would preclude the generating unit from operating.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Scott McGough - Georgia System Operations Corporation - 3,4

Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx

Comment

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters

Answer	Yes
Document Name	
Comment	

The Generator Cold Weather Constraint(s) definition references Generator Cold Weather Components. Should the reference be Generator Cold Weather Critical Components as that is a defined term?

Likes 0	
Dislikes 0	
Response	

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Key Recommendation 1c: To revise EOP-011-2, R7.3.2 to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The effects of precipitation and wind are covered in R1 and R2 of the standard.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational	

Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern Company agrees with the proposed definition of Generator Cold Weather Constraint.	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	

Please see the SDTs response to EEI in question 9.	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDTs response to EEI in question 9.	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS supports the proposed definition Generator Cold Weather Constraint.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes

Document Name	
Comment	
PNM supports the proposed definition of Generator Cold Weather Constraint.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation agrees that individual Constraint wording adds clarity. Suggest changing introductory wording to add "one or more" constraints, i.e., "... must fall under one or more of..." Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational	

Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation agrees that individual Constraint wording adds clarity. Suggest changing introductory wording to add "one or more" constraints, i.e., "... must fall under one or more of..."

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, “good utility practice” used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

Daniel Herring - DTE Energy - Detroit Edison Company - 3

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lovita Griffin - Austin Energy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Imane Mrini - Austin Energy - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	

Comment	
Xcel Energy believes that improvements to the Generator Cold Weather Constraint definition should be made to provide additional clarity. Please refer to EEI comments in response to question 9 of the comment form.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type. For additional information on the change from the last posting, please see the Technical Rationale document.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE recommends using the proposed term "Generator Cold Weather *Critical* Component" in the definition to ensure clarity and consistency. Texas RE is concerned the Technical Constraint description could include any current unit needing updates to run reliably. "New technologies" is not defined and subject to interpretation. The description also does not specify what a "sufficient period of time" is.	

Texas RE is concerned the proposed 'Commercial Constraint' definition is subject interpretation and could lead to difficulties assessing compliance. Clarification is needed in the phrase "at the time of the evaluation". It is not clear whether this includes the timeframe picked by the entity to implement the freeze protection plans or indicates that the entities will evaluate whether it is economical for the entities to implement the freeze protection measures to operate at the time of Extreme Cold Weather Temperature conditions. Texas RE recommends the drafting team consider the evidence required to demonstrate a Commercial Constraint.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments and suggestions. After reviewing the comments received related to the constraint declarations for this and prior postings, the SDT felt a better approach was to use a broader term, "good utility practice" used in previous NERC/FERC documentation along with the industry. Our approach was to remove the three specific categories of Technical, Commercial, and Operational Constraints and to replace them with only one category of good utility practice. This approach allows the GO/GOP to apply good utility practice to their specific geographic location and generation type.

For additional information on the change from the last posting, please see the Technical Rationale document.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

2. Do you agree that the proposed Requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data per Key Recommendation 1c? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

This is simply requiring us to perform a wind chill calculation with an ambiguous 20mph wind speed. Why are we not basing this on the calculations we have available from the ASOS or NWS data that we have already had to complie under EOP 012-1? Some regions or facilities are more protected from wind effects than others, and there is no direct correlation between extreme cold weather tempeartures and wind. So why are we trying to model something that has no technical basis?

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment	
We agree that “concurrent wind speed and precipitation” language has been incorporated into Requirement R1, Part 1.2.2. Less clear is to whom this information will be provided, and how it will be used by the recipient(s). Some generating technologies / plant designs may be more susceptible to the effects of wind and precipitation than others, but all will be required to address it? The technical rationale document states that “…if the historical minimum temperature occurred at low wind and dry conditions, and actual cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources” or that “…if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature”. What “planning personnel” are being referred to, and is there a corresponding requirement to provide this information to the planning personnel?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by the NAGF.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. Please see the SDT’s response to NAGF.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those suppied by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the SDT’s response to NAGF.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the SDT’s response to NAGF.	
Claudine Bates - Black Hills Corporation - 6	
Answer	No

Document Name	
Comment	
Black Hills Corporation agrees and supports the various entities comments, as well as those supplied by NAGF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the SDT’s response to NAGF.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The SRC agrees that the language in proposed Requirement R1 requires GOs to gather historical data regarding precipitation and wind speed, if available. However, it is unclear how this data is to be used beyond being included in the cold weather preparedness plan under Requirement R4. The SRC recommends that Requirement R4, Part 4.4 be revised to make the implementation of measures to address the effects of precipitation and the cooling effect of the wind mandatory if the data is available, rather than permissive. In addition, the SRC recommends that Requirement R1 be revised to require GOs to gather wind speed and precipitation data at their generating unit locations for use in future analysis if the data is not already being collected by the GO or by a third party from which the GO can procure the data.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.	

Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
While we agree that the effects of wind and precipitation play an important role in the performance of wind or solar generation during cold weather, these effects are already baked into the capacity factors submitted to the BAs. Additionally, the BAs should have the necessary requirements to perform imminent winter storm impact analysis based on their wide-area situational awareness with the mix of generation types they have in their areas.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
Enel North America Inc. supports the NAGF’s comments and suggests the SDT consider their recommendations.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. Please see the SDT’s response to NAGF.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren agrees with and supports NAGF comments on this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the SDT’s response to NAGF.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF does not agree that the proposed Requirement R1 accounts for the effects of precipitation and wind. In R1, the only place wind and precipitation are mentioned is under 1.2.2, which is focused on design information, actual operating information and under an engineering analysis. R1.2.2 does not account for the wind and precipitation, it only includes what occurred historically or at a single point in the design criteria. These issues are also concerning when paired with what the standard seems to mean by the term freezing. It appears that the SDT means to include three separate issues within the undefined term “freezing” which makes the full extent of the requirements unclear without properly defining what is expected. As currently understood, it appears that the SDT is including actual freezing (water turning to ice), malfunctions cause by fluids becoming too viscous (technically this is congealing, not freezing, but it’s functionally equivalent) and accretion/accumulation of moisture (such as blade icing on a wind turbine, snow accumulation on solar panels or ice accumulating on the air	

inlets of a gas turbine) which is not a form of freezing. If this is the intent, the SDT needs to define the term “freezing” so that all parties are clear on what is covered in the standard.

The multiple possible impacts of a winter storm cannot be combined into a single point. Impacts will vary greatly based on the mix of temperature, wind speed or precipitation rate. We also point out that wind turbines blades are much more likely to ice when the temperature is near freezing and precipitation occurs rather than at much lower temperatures.

As wind speeds increase the heat transfer rises, although not at a linear rate. So, a unit designed to operate at zero degrees with a 20 mile an hour wind might fail at five degrees with a 40 mile an hour wind. But the proposed standard looks at a CAP based solely on dry bulb temperature at the time of a freezing event. If a unit is designed to zero degrees and a 20-mph wind speed and it fails at 5 degrees with the 40-mph wind speed, what is the CAP expectation? Why would a Generator Owner do anything beyond identifying that the conditions exceeded the design capability of the unit?

To address this issue in a meaningful manner, we propose that NERC consider focusing on having generator units to identify their proven capabilities (by design, experience or analysis) regarding (a) DBT, (b) DBT/wind combination, and (c) precipitation. This would provide the BAs with the ability to know what to expect for the forecasted weather and not be surprised when generation fails because the weather is beyond the one of the capabilities identified. Until that level of understanding and expectations are understood, the BAs will continue to claim the issues are all caused by generation because the BA did not know something was wrong.

To compliment this change, we propose that the SDT modify the definition of Generator Cold Weather Reliability Event accordingly.

In summary, the current proposal does not allow for an entity to meet a design criteria because the SDT has focused solely on temperature. Precipitation should stand separate from temperature/wind. None of the loss-of-firm-load incidents that gave rise to EOP-012 were caused by precipitation*; they all involved extreme cold combined with high winds.

* Winter Storm Uri began with an ice storm that took out the wind turbines of northern Texas, but the fossil fleet ramped-up and there was no problem. Blackouts did not occur until the weather later became very cold and breezy.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	
Minnesota Power supports the North American Generator Forum's (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the SDT's response to NAGF.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE supports the SRC comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No

Document Name	
Comment	

NV Energy does not agree that the proposed requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data as per Key Recommendation 1c.

1.2.2 requires a GO to identify generating unit minimum temperature by 1 of three methods. Two of these methods only require providing data on concurrent wind speed and precipitation if available, and the third method requires a concurrent wind speed and precipitation to be considered but does not specify to what extent wind speed and precipitation must be considered. This approach does not account for effects of precipitation and the accelerated cooling effect of wind, it merely requires a point in time observation. For example, if a plant had an observed minimum “Historical operating temperature” of 0°F with a concurrent wind speed of 5mph, this would be the reported condition, regardless of if 2 hours prior there was a 10-hour period of time with a temperature of 3°F with a concurrent wind speed of 20mph. The secondary scenario would most certainly have a greater rate of heat loss and high risk of reliability impacts due to extreme cold weather; however, the first scenario is what would be required to be recorded per 1.2.2. This failure to account for the impacts of heat loss due to wind and/or precipitation could have real and negative impacts to the reliability of the Bulk Electric System as Balancing Authorities will have incomplete data regarding the Capability and Availability of generating units across the spectrum of operating conditions that could be parameterized by accounting for the heat loss (or cooling effect) experienced by a plant due to the combination of wind, precipitation, and temperature.

Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	No
Document Name	
Comment	

Properly identifying capability and unit min operating temperature is dependent not only on temperature but various wind speeds and precipitation. This information is not readily available for older existing generators and varies over different conditions. It will be difficult to provide accurate information to the BAs based on a single point. Currently the standard only looks at dry bulb temperature for determining the ECWT, associated critical components, and associated protection to cover these components. There is a gap in expectations and understanding how these parameters are used either with or in lieu of ECWT in the standard. This language unfortunately creates confusion regarding how and when it is applied. The standard needs to better express how these parameters are related, when each is used (in a CAP or as an initial declaration to the RC/BA), and how compliance will be measured.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	No
Document Name	

Comment

Properly identifying capability and unit min operating temperature is dependent not only on temperature but various wind speeds and precipitation. This information is not readily available for older existing generators and varies over different conditions. It will be difficult to provide accurate information to the BAs based on a single point. Currently the standard only looks at dry bulb temperature for determining the ECWT, associated critical components, and associated protection to cover these components. There is a gap in expectations and understanding how these parameters are used either with or in lieu of ECWT in the standard. This language unfortunately creates confusion regarding how and when it is applied. The standard needs to better express how these parameters are related, when each is used (in a CAP or as an initial declaration to the RC/BA), and how compliance will be measured.

Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.	
Imane Mrini - Austin Energy - 6	
Answer	No
Document Name	
Comment	
Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous" Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation; or	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Tony Hua - Austin Energy - 4	
Answer	No
Document Name	
Comment	
Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous" Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation;	

Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	

Response

Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.

Lovita Griffin - Austin Energy - 3

Answer	No
Document Name	

Comment

Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous"

- Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation; or

Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	

Response

Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.

Michael Dillard - Austin Energy - 5

Answer	No
Document Name	

Comment

Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous":

Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation;

Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	
Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
Weather records for many locations will not have data sufficient to consider these factors, as such during audits entities will somehow have to show that data wasn't available and justify why this information is not included.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, **if available**, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria. If the data is not available, the supporting records should indicate that.	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	
MRO NSRF does not agree that the proposed requirement R1 language accounts for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data as per Key Recommendation 1c. 1.2.2 requires a GO to identify generating unit minimum temperature by 1 of three methods. Two of these methods only require providing data on concurrent wind speed and precipitation if available, and the third method requires a concurrent wind speed and precipitation to be considered but does not specify to what extent wind speed and precipitation must be considered. This approach does not account for effects of precipitation and the accelerated cooling effect of wind, it merely requires a point in time observation. For example, if a plant had an observed minimum “Historical operating temperature” of 0°F with a concurrent wind speed of 5mph, this would be the reported condition, regardless of if 2 hours prior there was a 10-hour period of time with a temperature of 3°F with a concurrent wind speed of 20mph. The secondary scenario would most certainly have a greater rate of heat loss and high risk of reliability impacts due to extreme cold weather; however, the first scenario is what would be required to be recorded per 1.2.2. This failure to account for the impacts of heat loss due to wind and/or precipitation could have real and negative impacts to the reliability of the Bulk Electric System as Balancing Authorities will have incomplete data regarding the Capability and Availability of generating units across the spectrum of operating conditions that could be parameterized by accounting for the heat loss (or cooling effect) experienced by a plant due to the combination of wind, precipitation, and temperature.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Thomas Standifur - Austin Energy - 1	
Answer	No
Document Name	
Comment	
Austin Energy proposes a modification to R1.2.2 (bullet 2) to add the word "continuous" Historical operating temperature at least one CONTINUOUS hour in duration, and if available, concurrent wind speed and precipitation; or	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	
Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	
Comment	
R1.2.2 Bullet 3 – Add “if available”; strike “which includes”: Current cold weather performance temperature determined by an engineering analysis, “if available”, " " concurrent wind speed and precipitation. Suggest changes due to the availability of data.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. R1.2.2 has been slightly modified in this version of the standard, adding “if available”, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
This is simply requiring us to perform a wind chill calculation, with an ambiguous 20mph wind speed. Why are we not basing this on the calculations we have available from the ASOS or NWS data that we have already had to complie under EOP 012-1. Some regions or facilities are more protected from wind effects than others, and there is no direct correlation between extreme cold weather tempeartures and wind so why are we trying to model something that has no technical basis.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree. Reclamation Hydro generators are not designed by taking into account concurrent wind speed and precipitation as they are protected internally to a physical structure and do not have environmental constraints. The amount of precipitation or wind speed has no effect on these units and should be removed from this standard. Also, depending on the unforeseen combination of wind, precipitation and temperature, it is impossible to predict variants in each from one hour to the next.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
In R1, the only place wind and precipitation are mentioned is under 1.2.2 (design information, actual operating information and engineering analysis), and as concurrent data for a worst-case temperature. It does not follow that references to “freezing” in the standard include three	

different phenomena: actual freezing (water turning to ice), malfunctions cause by fluids becoming too viscous (technically this is congealing, not freezing, but it's functionally equivalent) and accretion/accumulation of moisture (such as blade icing on a wind turbine, snow accumulation on solar panels or ice accumulating on the air inlets of a gas turbine) which is not a form of freezing. If this is the intent, the SDT needs to define the term "freezing" so that all parties are clear on what is covered in the standard.

Such a wide-ranging definition would be a mistake, however. The effect of low temperature and wind in causing freezing or congealing stands separate from precipitation-related problems. The ice storms that knock wind turbines offline occur near 32 F, for example, and have nothing to do with ability to operate at the ECWT. None of the loss-of-firm-load incidents that gave rise to EOP-012 was caused by precipitation*; they all involved extreme cold combined with high winds. Precipitation-related obligations in EOP-012 should be of a solely informative nature, not prescriptive.

* Winter Storm Uri began with an ice storm that took out the wind turbines of northern Texas, but the fossil fleet ramped-up to cover the losses and there was no problem. Blackouts did not occur until the weather later became very cold and breezy.

NERC should focus on getting existing plants to identify their proven capabilities for existing units (by design, experience or analysis) regarding (a) DBT, (b) DBT/wind combination, and (c) precipitation. BAs would then know what to expect for the forecasted weather and not be surprised when generation fails because the weather is beyond the one of the capabilities identified.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

This is simply requiring us to perform a wind chill calculation, with an ambiguous 20mph wind speed. Why are we not basing this on the calculations we have available from the ASOS or NWS data that we have already had to complie under EOP 012-1. Some regions or facilities are more protected from wind effects than others, and there is no direct correlation between extreme cold weather tempeartures and wind so why are we trying to model something that has no technical basis.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Tacoma Power recommends editing the third bullet in R1.2.2 to make it clear that the engineering analysis is not looking at concurrent wind speed and precipitation from historical operating temperature data (see proposed mark-up below). Instead, the engineering analysis is considering performance limitations imposed by concurrent wind speed and precipitation.

R1.2.2, third bullet:

*Current cold weather performance temperature determined by an engineering analysis, which includes **limitations** on concurrent wind speed and precipitation.*

Likes 1	Platte River Power Authority, 3, Kiess Richard
Dislikes 0	

Response

Thank you for your comment. The SDT believes R1 meets the objectives of Key Recommendation 1c in the simplest manner.	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	

SIGE recommends adding “Calendar” before the words “Year” and “Month” – similar to PRC-005 language.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. R1 has been modified to include “calendar”.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
It is suggested that “and engineering analysis, operating data or design information” in M1 be changed to “and design information, operating data or engineering analysis” to be consistent with the sequence in R1.2.2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. R1 has been modified to include “calendar”.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation agrees, wording provides sufficient flexibility to allow context for minimum temperature conditions so that wind and precipitation conditions different than historical can be used in planning for actual future events.	

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation agrees, wording provides sufficient flexibility to allow context for minimum temperature conditions so that wind and precipitation conditions different than historical can be used in planning for actual future events.

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The content of Requirement R1 has been slightly modified in this version of the standard, but still requires the Generator Owner to document the concurrent wind and precipitation, if available, with its minimum temperature if determined by design data or historic operating data. If an engineering study is done, it must include concurrent wind and precipitation criteria.

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC

Answer	Yes
Document Name	

Comment	
PNM agrees that the language in proposed Requirement R1 aligns with Key Recommendation 1c.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees the proposed language in R1 accounts for Recommendation 1c.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	

Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI in Question 9.	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI in Question 9.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern Company supports the EEI Comments that the proposed language in R1 aligns with Key Recommendation 1c.	
Likes 0	
Dislikes 0	
Response	

Please see the SDT's response to EEI in Question 9.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI in Question 9.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDTs response to NPCC/RSC.	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	

Answer	Yes
Document Name	
Comment	
Recommend adding the word "calendar" to Requirement R1 so it reads: "At least once every five calendar years ….". This would provide clarity on the bookends of the task and aligns with the approach used in other standards such as PRC-002-2 R5.4.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. R1 has been modified to include "calendar".	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Regarding the second bullet in Requirement Part 1.2, Texas RE recommends including a provision for documenting the reason(s) why concurrent wind speed and precipitation are not available.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT drafted this requirement to document the concurrent wind speed and temperature that are available, but recognizes that for GOs using generating unit data or external weather sources wind and precipitation may not be available.	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	
Xcel Energy believes that improvements to the proposed Requirement R1 language should be made to provide additional clarity. Please refer to EEI comments in response to question 9 of the comment form.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI in Question 9.	

3. Do you agree that the proposed date of October 1, 2027 is an appropriate time frame for units that enter commercial operation after this date to implement the enhanced cold weather requirements that are contained within Requirement R2? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	No
Document Name	
Comment	
Comments: This date should be determined as part of the Implementation Plan upon the standard being approved and effective as opposed to a fixed date. For example, number of months after effective date.	
Likes 1	Luminant - Luminant Energy, 6, Ferrell Russell
Dislikes 0	
Response	
Thank you for your comment. As EOP-012-1 was approved by industry and FERC, the SDT thought it most appropriate to provide a date certain for new unit requirements to limit confusion.	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	

Tacoma Power does not agree that October 1, 2027 is an appropriate time frame. This time frame could significantly delay or increase costs for new projects currently planned or underway. Tacoma Power recommends deleting "commercial operation" and replacing with "units built after this date".	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT fully understood the concern regarding plants in construction, as such, the standard provides for the option to implement a Corrective Action Plan with up to a 48-month timeframe to get the appropriate freeze protection measures implemented.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree, as it is not defined whether new or existing units are required to meet R2 to enter commercial operation. Recommend that Commercial Operation be capitalized as defined in the Glossary of Terms.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supporting the current dates.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	

Comment

no.

Likes 0

Dislikes 0

Response

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	No
Document Name	

Comment

The drafting team has not shown sufficient technical basis for the implementation for October 1, 2027

Likes 0

Dislikes 0

Response

Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supporting the current dates.

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Buckeye supports the comments of ACES:

Design decisions for new generating units and/or facilities are made well in advance of the start of construction. In many cases, design decisions are made years in advance. Under the currently proposed language in R2.1.3, the GO must install freeze protection measures that provide the ability to operate for 12 continuous hours at the unit(s) Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components. This requirement will likely cause the GO to either make significant design changes to comply with this requirement. In short, the GO will need to either install additional freeze protection measures or to build enclosures to house any critical components. This requirement will cause the GO to either incur significant additional design and/or construction costs or to expedite the schedule(s) for any in progress project(s). We recommend a five (5) year phased compliance approach for Requirement R2. Using the current compliance date for EOP-012-1, the new recommended date is October 1, 2029.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT fully understood the concern regarding plants in construction, as such, the standard provides for the option to implement a Corrective Action Plan with up to a 48-month timeframe to get the appropriate freeze protection measures implemented.

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC comments that R2 and R3 should be combined to include all units and by doing so would result in a more reliable and performant BES during extreme cold weather conditions.

Likes 0	
Dislikes 0	

Response	
Thank you for your comment. The SDT discussed applying the same requirements to existing units as new units and determined that these requirements would be difficult to retrofit and may not be justified provided that existing units can prove reliable performance at temperatures above their ECWT.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	
AEPC signed on to ACES comments: Design decisions for new generating units and/or facilities are made well in advance of the start of construction. In many cases, design decisions are made years in advance. Under the currently proposed language in R2.1.3, the GO must install freeze protection measures that provide the ability to operate for 12 continuous hours at the unit(s) Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components. This requirement will likely cause the GO to either make significant design changes to comply with this requirement. In short, the GO will need to either install additional freeze protection measures or to build enclosures to house any critical components. This requirement will cause the GO to either incur significant additional design and/or construction costs or to expedite the schedule(s) for any in progress project(s). We recommend a five (5) year phased compliance approach for Requirement R2. Using the current compliance date for EOP-012-1, the new recommended date is October 1, 2029.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT fully understood the concern regarding plants in construction, as such, the standard provides for the option to implement a Corrective Action Plan with up to a 48-month timeframe to get the appropriate freeze protection measures implemented.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	

Answer	No
Document Name	
Comment	
The proposed date of October 1, 2027 is based on the effective date of October 1, 2024. For those jurisdictions where regulatory approval is required, the Standard effective date may be later than October 1, 2027. It is suggested to change "October 1, 2027" to "36 months after the effective date of this Standard".	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. As EOP-012-1 was approved by industry and FERC, the SDT thought it most appropriate to provide a date certain for new unit requirements to limit confusion.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The SRC disagrees that the enhanced cold weather requirements that are contained within Requirement R2 should be limited to units that enter commercial operation after October 1, 2027. Requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units. The Generator Cold Weather Constraint declaration process and the Corrective Action Plan process within EOP-012 provide sufficient accommodation for existing units. Adopting the SRC's proposal would require more thorough weatherization of generation units, resulting in a more reliable and performant BES during extreme cold weather conditions.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment. The SDT discussed applying the same requirements to existing units as new units and determined that these requirements would be difficult to retrofit and may not be justified provided that existing units can prove reliable performance at temperatures above their ECWT.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
Contracts for new units are currently being issued with commercial operation dates after 10/1/2027. Also, some existing contracts for new units are being delayed past 10/1/27 due to manpower and equipment supply chain issues. These contracts do not neccesarly include all the cold weather requirements from this standard. Changing the contracts would at the minimum be expensive and, at the worst may not be possible. Therefore we suggest the date be pushed out to 10/1/30.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT fully understood the concern regarding plants in construction, as such, the standard provides for the option to implement a Corrective Action Plan with up to a 48-month timeframe to get the appropriate freeze protection measures implemented.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	
Comment	
Given we are not in support of these changes as written, the proposed date needs to be reconsidered after further evaluation of the standard.	

Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supporting the current dates.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	No
Document Name	
Comment	
Design decisions for new generating units and/or facilities are made well in advance of the start of construction. In many cases, design decisions are made years in advance. Under the currently proposed language in R2.1.3, the GO must install freeze protection measures that provide the ability to operate for 12 continuous hours at the unit(s) Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components. This requirement will likely cause the GO to either make significant design changes to comply with this requirement. In short, the GO will need to either install additional freeze protection measures or to build enclosures to house any critical components. This requirement will cause the GO to either incur significant additional design and/or construction costs or to expedite the schedule(s) for any in progress project(s). We recommend a five (5) year phased compliance approach for Requirement R2. Using the current compliance date for EOP-012-1, the new recommended date is October 1, 2029.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT fully understood the concern regarding plants in construction, as such, the standard provides for the option to implement a Corrective Action Plan with up to a 48-month timeframe to get the appropriate freeze protection measures implemented.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	

While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy does believe this is sufficent time.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	

WEC Energy Group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern Company Supports the EEI comments and agrees the proposed date of October 1, 2027 is an appropriate timeframe.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	

Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT response to NAGF.	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	Yes
Document Name	
Comment	
MRO NSRF agrees that the proposed date of October 1, 2027, is appropriate.	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Please see the SDTs response to EEI.	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	Yes
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Please see the SDTs response to NAGF.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	

Answer	Yes
Document Name	
Comment	
While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDTs response to EEI.	

Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees with the proposed date of October 1, 2027 as an appropriate timeframe.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	

Comment	
NV Energy agrees that the proposed date of October 1, 2027, is appropriate.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM supports the proposed date of October 1, 2027.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments.	

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	Yes
Document Name	

Comment

While this date may impact some units already planned, the CAP process addresses the potential issues. There may be some negative impacts caused by the slow interconnection process being experienced but the fixed date provides all entities reasonable notice.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	Yes
Document Name	
Comment	
Ameren agrees with and supports NAGF comments on this question.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	Yes
Document Name	
Comment	

Xcel Energy agrees with the timeline identified in R2. We also support comments offered by EEI in response to question 9 of the comment form.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
AES CE supports the proposed date.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
SIGE supports the proposed date of October 1, 2027 in R2.	

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Julie Hall - Entergy - 6, Group Name Entergy

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

4. The SDT structured R2.1 and R2.2 in the vein of an if/then statement. The intent being, if a GO implements R2.1, then they would be compliant with Requirement R2. If a GO does not implement R2.1 but implements R2.2, then they would be compliant with Requirement R2. Stated differently, a GO would only risk non-compliance with Requirement R2 if they did neither R2.1 nor R2.2. Does the proposed language, as drafted by the SDT, provide that clarity and reflect the SDT's intent as stated above? If not, please provide suggested clarifying language.

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

This 'and/or' or 'if/then' option is not implied in the standard as currently drafted. Additional clarity would be beneficial.

Likes 0

Dislikes 0

Response

Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

We suggest adding additional clarification to the end of Requirement R2 so that it states, "*…required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), shall **meet either Part 2.1 or Part 2.2 below**:*".

Likes 0

Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees and supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The SRC believes that Requirement R2 would more clearly reflect the SDT's intent that a GO that has not implemented Part 2.1 can achieve compliance with Requirement R2 by implementing Part 2.2 if Part 2.2 were revised to read as follows: "Each Generator Owner that does not have freeze protection measures as required by Requirement R2 Part 2.1 **may comply with this requirement by developing and implementing** a Corrective Action Plan."	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
It is better to state clearly in R2 that only R 2.1 or R 2.2 is required. It is not clear if freeze protection measures are required when Generator Cold Weather Critical Components are inside the heated powerhouse at units' Extreme Cold Weather Temperature.	

It is suggested that R 2.1 be changed to:

2.1 Have freeze protection measures to protect Generator Cold Weather Critical

Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature:

2.1.1 For (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; and

2.1.2 With a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components.

It is suggested that the first sentence of M2 be changed to:

Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with Requirement R2.1, or it has developed a Corrective Action Plan for the identified issues in accordance with Requirement R2.2.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.

Tracy MacNicoll - Utility Services, Inc. - 4

Answer	No
Document Name	

Comment

The way 2.1 is currently written, you have to satisfy 2.1. Recommend adding language similar to the bullet point in R1 of PRC-024-3.

Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
Enel North America Inc. does not believe Requirement R2 provides the intent of an if/then statement as currently written. Enel suggests following the MRO NSRF recommendation of following the either/or method utilized in PRC-002 R12 to accomplish the intent of the SDT.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren agrees with and supports NAGF comments on this question.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment
The NAGF notes that R2.1 deals solely with dry bulb temperature and wind, leaving “freezing” in the form of precipitation-related vulnerabilities unaddressed and therefore causing confusion when compared to the intermingled concept of “freezing” currently used by the standard. Precipitation should be handled separately from freezing, and only in an informative (not prescriptive) manner. There are snow-*resistant* inlet air filters, and many are experimenting with accretion-*resistant* wind turbine blades, but one ultimately is dealing with degrees of risk and not certainties. This is especially the case when considering the many variabilities involved (dry fluffy snow vs heavy wet snow, snowstorm vs ice storm, 12” of snow at 1 in/hr for 12 hours versus 4 hours at 3 in/hr, wind from the east or from the west etc.).

Likes 0	
Dislikes 0	

Response
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment
Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	No
Document Name	
Comment	
PNM recommends including “**or**” for R2.1 or R2.2 that demonstrates compliance if either R2.1 or R2.2 is completed, similar to PRC-002-2 R12.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE supports the SRC comments.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	No
Document Name	
Comment	

NV Energy agrees with the stated intent of R2. However, NV Energy does not agree that the proposed if/then method that the SDT attempted to implement in R2 is capable of accomplishing this intent. As currently written, there is no language that removes the obligation of compliance with R2.1 while developing a CAP as required by R2.2. NV Energy suggests that the SDT review PRC-002 R12. PRC-002-2 R12 utilizes an either/or approach regarding EITHER meeting a certain required capability OR developing a CAP to allow for meeting of the required capability.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	No
Document Name	
Comment	

NRG doesn't have a concern with the if/then scenario. However, under R2.1, the identified critical components are required to have appropriate freeze protection measures to protect to the ECWT (a single point of dry bulb temp). However, this requirements adds a 20 mph requirement which can be confusing. As stated above clarification should be made to better declare when these additional parameters should be considered.

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
NRG doesn't have a concern with the if/then scenario. However, under R2.1, the identified critical components are required to have appropriate freeze protection measures to protect to the ECWT (a single point of dry bulb temp). However, this requirements adds a 20 mph requirement which can be confusing. As stated above clarification should be made to better declare when these additional parameters should be considered.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	No
Document Name	

Comment	
SMUD and BANC agree with the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Lovita Griffin - Austin Energy - 3	
Answer	No
Document Name	
Comment	
Austin Energy comments on R2.1.3 This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Tony Hua - Austin Energy - 4	
Answer	No
Document Name	

Comment	
Austin Energy comments on R2.1.3 This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Imane Mrini - Austin Energy - 6	
Answer	No
Document Name	
Comment	
This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No

Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
It is not strongly worded enough to provide assurance that this will be treated as an if-then statement by the Auditors.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	

MRO NSRF agrees with the stated intent of R2. However, MRO NSRF does not agree that the proposed if/then method that the SDT attempted to implement in R2 is capable of accomplishing this intent. As currently written, there is no language the removes the obligation of compliance with R2.1 while developing a CAP as required by R2.2. MRO NSRF suggests that the SDT review PRC-002 R12. PRC-002-2 R12 utilizes an either/or approach regarding EITHER meeting a certain required capability OR developing a CAP to allow for meeting of the required capability.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.

Thomas Standifur - Austin Energy - 1

Answer	No
Document Name	

Comment

This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.

Likes 1	Austin Energy, 6, Mrini Imane
Dislikes 0	

Response

Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer	No

Document Name	
Comment	
Tri-State would like to recommend the following verbiage for R2: R2. Applicable to generating units with a commercial operation date or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated ExtremeCold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius)as determined in Requirement R1, and that self-commits or is required to operate ator below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),(1) shall have freeze protection measures as described in Part 2.1 or develop a Corrective Action Plan as described in Part 2.2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

Modify R2 to add "shall perform R2.1 or R2.2" as follows:

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), "shall perform R2.1 or R2.2": [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

this and/or or if/then option is not implied in the standard as currently drafted. Additional clarity would be beneficial.

Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
R2.1 deals solely with dry bulb temperature and wind, leaving “freezing” in the form of precipitation-related vulnerabilities unaddressed and therefore causing confusion. Precipitation should be handled separately from freezing, and in only an informative (not prescriptive) manner, since one cannot obtain vendor guarantees in this respect. There are snow-*resistant* inlet air filters, and many are experimenting with accretion-*resistant* wind turbine blades, but one ultimately is dealing with degrees of risk and not certainties. This is especially the case when considering the many variabilities involved - dry fluffy snow vs heavy wet snow, snow storm vs ice storm, 12” of snow at 1 in/hr for 12 hours vs 4 hours at 3 in/hr, wind from the east or for the west etc.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	

no, this and/or or if/then option is not implied in the standard as currently drafted. Additional clarity would be beneficial.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	Yes
Document Name	

Comment

While we believe the proposed language provides the intended clarity. We recommend using an "or" statement as in other requirements to further emphasize the intent. For an example, see the proposed language in R1.2.2.

Likes 0

Dislikes 0

Response

Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	Yes
Document Name	

Comment

SIGE agrees that the proposed language is sufficient to clarify the Standard Drafting Team’s if/then intent.

Likes 0

Dislikes 0

Response

Thank you for your support.

Ruchi Shah - AES - AES Corporation - 5

Answer	Yes
Document Name	
Comment	
While AES CE agrees with the proposed language, we also want to caution that high wind and cold temperatures do not always equate to freezing. Precipitation also plays an important role in freezing.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
AEPC signed on to ACES comments: While we believe the proposed language is provides the intended clarity, we recommend using an "or" statement as in other requirements to further emphasize the intent. For an example, see the proposed language in R1.2.2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.	

Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation agrees the logic seems to work Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation agrees the logic seems to work Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment.

Marcus Bortman - APS - Arizona Public Service Co. - 6

Answer	Yes
Document Name	

Comment

AZPS agrees with the intent of R2.1 and R2.2.

Likes 0

Dislikes 0

Response

Thank you for your comment.

Lindsey Mannion - ReliabilityFirst - 10

Answer	Yes
Document Name	

Comment

While the SDT’s intended relationship between R2 Part 2.1 and R2 Part 2.2 is clear, RF recommends one of the following additions to prevent misunderstanding or misapplication:

- Before the R2 VRF and Time Horizon, replace “shall:” with “shall meet either Part 2.1 and the associated sub-Parts or Part 2.2:” OR
- Begin Part 2.2 with “Unless developing a Corrective Action Plan, have freeze protection measures…”

Likes 0

Dislikes 0

Response

Thank you for your comment. The SDT has edited Requirement R2 to clarify the either-or nature of the two actions in the Requirement.

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin

Answer	Yes
Document Name	

Comment

ITC supports EEI's comments.

Likes 0	
Dislikes 0	

Response

Please see the SDT's response to EEI question 9.

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Please see the SDT's response to EEI question 9.

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	
Comment	
Southern Company agrees that the language in R2.1 and R2.2 align with the SDT's intent.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI question 9.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes

Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NPCC/RSC.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
AEP's reply of "yes" to Question #4 is driven by our understanding that if an event takes place involving new generation, that an entity may develop a CAP and follow the associated process. Is our interpretation correct in this regard?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT intends for the Corrective Action Plan process (as defined and with requirements elsewhere in EOP-012) to address the issue or lead to the Generator Owner to declaring a constraint which leads to compliance with the standard.	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes

Document Name	
Comment	
Requirement R7 allows for Generator Cold Weather Constraints. It's conceivable that Requirement R2.2 may have a Corrective Action Plan that can't be implemented under Requirement R7 due to Constraints. Would this scenario be considered compliant?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has revised R7 to recognize that a CAP may be impacted by a constraint declaration.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	
Xcel Energy supports comments offered by EEI in response to question 9 of the comment form.	
Likes 0	
Dislikes 0	
Response	

Please see the SDT’s response to EEI question 9.

Michael Dillard - Austin Energy - 5	
Answer	
Document Name	
Comment	
Austin Energy comments on R2.1.3: This requirement as written is somewhat onerous. It should be treated as a wind chill factor and GOs would have to meet a temperature that, with the addition of a 20mph constant wind, would reach a wind chill temperature equal to the ECWT.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has edited Requirement R2 to provide clarity on the requirements for generation with a commercial operation date on or after October 1, 2027.	

5. The SDT proposes two timeframes, 24 months for addressing existing equipment or freeze protection and 48 months for implementing new equipment or freeze protection, for Corrective Action Plans in Requirement R7. Do you agree that the timeframes proposed are appropriate? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
Tacoma Power is concerned with potential impacts of supply chain delays in meeting this timeframe. Flexibility should be allowed in the Requirement to account for these unexpected delays. Recent supply chain delays caused significant challenges for implementing CIP-012-1 and as a result, alternative protections needed to be developed in order to meet the effective date. Tacoma Power recommends adding a sub-Requirement that would allow entities to request additional time to be compliant if there's unforeseen delays. For example: "R.7.1.2.1 If unforeseen delays outside of the Entities' control arise, then Entities should report the delays and revised CAP date to ERO Enterprise."	
Likes 0	
Dislikes 0	
Response	
Thank you for your response. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	
Question #5 includes the word "implementing" in regards to new protection measures, however, this word this is not used within R7 itself. AEP proposes that the wording for 7.1.1 & 7.1.2 be revised as follows, which we believe will provide the needed clarity.	

7.1 Include a timetable for *implementing* the selected corrective action(s) that shall: 7.1.1 Be completed within 24 months *of CAP development* if the corrective actions involve existing freeze protecting measures/equipment 7.1.2 Be completed within 48 months *of CAP development* if the corrective actions involve new freeze protecting measures/equipment.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
It is impossible to fully understand what it is that a Generator Owner is being asked to do at this time, due to the issues discussed above. If the SDT can provide better guidance or clearer requirements, then the time horizons can be better understood. Additionally, since a GO may have to address hundreds of wind turbine, thousands of solar panels or a large number of conventional units, it is impossible to say how long it will take to fund modifications, find resources to perform the work, and schedule outages with the BAs to allow work to be completed. While the proposed time limits have been used by NERC in standards, specifically TPL-007, we note that TPL-007 requires a CAP only for a single unit, not a fleet of units, in addition to being very limited in the scope rather than open to any possible cause of a trip, derate or failure to start. Due to this significant difference, a limited time frame in the style of TPL-007 is impractical, despite the fact that FERC pointed to TPL-007. A CAP addressing an entire fleet may require a certain period of time for planning and design work, then a rolling effort to modify units one by one – say half a year to retrofit one unit, two years for four, and four years for eight.	
Likes 0	
Dislikes 0	
Response	

Thank you for your response. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree. Addressing existing equipment upgrades as well as Implementation of new equipment are time and cost burden actions that can vary based on funding, equipment availability, manpower, industry limitations and other unforeseen items. Recommend 36 months for existing and 60 months for new equipment.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	
WEC Energy Group supports the NAGFs comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	
Comment	
What is considered new eqiupment per 7.1? Would this be brand new equipment for the facility or a new piece of equipment for the CAP in 7.1?	
Likes 0	
Dislikes 0	
Response	
Thank you for your response. New equipment refers to new freeze protection measures that are being deployed.	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	No
Document Name	

Comment	
This time frame may not be sufficient to address freeze protection measures for a multi-unit generator facilities hence there should be a provision for MP to work with the balancing authority to develop and agree on a schedule for corrective action implementation.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
Smaller entities that have multiple projects need to go through a buget process and need time to implement corrections throughout their fleet. Smaller entites will find this a significant burden.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	

We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE supports the SRC comments and recommends adding language to R7.1.1 and 7.1.2 that provides a timeline for CAP completion. ISO-NE proposes 12 months from CAP development with an allowance of 24 months if the installation of new freeze protection equipment is required.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	No
Document Name	
Comment	
PNM recommends a clarifying statement for the timeline related to new freeze protection on existing equipment. Is the intent to have the timeline in this scenario be 24 months or 48 months. PNM would support a 48 month timeline for all new freeze protection measures on existing equipment.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The current timeframes are 24 months for CAPs on existing freeze protection measures and 48 months for the implementation of new freeze protection measures.	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	
Minnesota Power supports the North American Generator Forum's (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF supports the desire to have separate deadlines for repairs and new implementation. However, the NAGF has concerns about the proposed time limits as follows: a. For the reasons stated above related to wind and precipitation, the NAGF believes it is impossible to fully understand what it is that a Generator Owner is being asked to do at this time based on the language in the standard. If the SDT can provide better guidance or clearer requirements, then the time horizons can be better understood.	

b. Additionally, since the CAP may have to address anywhere from 1 to 1000 wind turbines, solar panels or a large number of individual thermal units, it is impossible to say how long it will take to fund modifications, find resources to perform the work, and schedule outages with the BAs to allow work to be completed, all while attempting to complete ongoing maintenance to allow generators to run.

c. While these time limits have been used by NERC in previous standards, specifically TPL-007, we note that TPL-007 requires a CAP only for a single unit, not a fleet of units in addition to being very limited in the scope of the issue to be covered rather than open to any possible cause of a trip, derate or failure to start. Therefore, the scope of a CAP under TPL-007 is very limited while the scope of the CAPs envisioned under EOP-012 will vary greatly as the CAP is not limited to a single unit or even a single plant. Due to this significant difference, a hard time frame is unacceptable. Either the scope of the CAP must be limited to a single unit (similar to TPL-007), or at most a single plant, or the time period to complete the CAP needs to be modified to allow an amount of time per unit identified, instead of a time limit for the entire CAP.

d. While we understand that NERC and FERC have determined that addressing cold weather is a high priority, if Generator Owners are unable to either afford or complete required maintenance because cold weather issues take priority, then the generators will likely have forced outages before the units experience cold weather-related outages.

For these reasons, the NAGF asks that the SDT goes back and looks at the FERC order related to EOP-012 in a more reasonable manner. While we understand that FERC pointed to TPL-007, that does not mean TPL-007 provides a reasonable framework for EOP-012. While we do not believe a CAP should have 4 years for each unit identified, it would not be unreasonable for an additional year or two to be included in the CAP for each unit identified. As an example, assuming an additional year per unit is determined reasonable, when the Generator Owner identifies two units that have a similar vulnerability, then the CAP would have three years or five years, depending on the type of issue.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AES CE supports NAGF's comments in regards to this question. While AES CE appreciates the SDT's proposed timeline to address existing equipment and new equipment, the issue at hand is the concern of the inability to complete the Corrective Action Plan due to labor resources as well as equipment availability. Additionally, outages that need to be taken within the proposed timeline may create constraints in operations and impact reliability as well. So, 24 months and 48 months may not be sufficient to address what needs to be implemented for the CAP that will be developed.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	No
Document Name	
Comment	
The 24 months specified by this plan is only sufficient if it is not concurrent with the time period specified by the Implementation Plan but is in addition to those times.	

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The 24-month timeframe is in addition to the implementation timeframe of the standard itself.

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

For the reasons discussed in its response to question 9, the SRC believes these timeframes should be 12 months and 24 months, respectively, rather than 24 months and 48 months.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The 24-month timeframe is in addition to the implementation timeframe of the standard itself.

Claudine Bates - Black Hills Corporation - 6

Answer	No
Document Name	

Comment

Black Hills Corporation (BHC) is concerned with the impact supply chain delays could have in meeting this time frame. BHC suggests adding a sub-requirement to allow entities to request additional time for compliance if unforeseen delays affect them.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation (BHC) is concerned with the impact supply chain delays could have in meeting this time frame. BHC suggests adding a sub-requirement to allow entities to request additional time for compliance if unforeseen delays affect them.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

Black Hills Corporation (BHC) is concerned with the impact supply chain delaiys could have in meeting this time frame. BHC sugests adding a sub-requirement to allow entities to request additional time for compliance if unforseen delays affect them.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.

Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	

Comment

Black Hills Corporation (BHC) is concerned with the impact supply chain delays could have in meeting this time frame. BHC suggests adding a sub-requirement to allow entities to request additional time for compliance if unforeseen delays affect them.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

Due to the nature of nuclear power plant operations, 24 months and up to 48 months is not enough time for planning, designing, and completing the work. There should be a caveat or exemption given for sites that cannot meet these timelines.

It is unclear what “existing equipment” (in 7.1.1) and “new equipment” (in 7.1.2) means. We suggest deleting the words “equipment or” in both sub-parts so that they just address freeze protection measures.

Likes 0	
Dislikes 0	

Response	
Thank you for your comments. The SDT believes that the current timeframes will be adequate in the vast majority of instances. Where it is not adequate, Requirement 7.3 supports the possibility for an extension.	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to provide the constraint declaration to the Balancing Authority and update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.	
Likes 0	
Dislikes 0	
Response	

Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.

Robert Follini - Avista - Avista Corporation - 3

Answer	Yes
Document Name	

Comment

yes, this is better clarification than what was provided in EOP 12-1

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	Yes
Document Name	

Comment

OPG agrees with NPCC/RSC's comments.

Likes 0	
Dislikes 0	

Response

Please see the SDT’s response to NPCC/RSC.

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes

Document Name	
Comment	
Southern Company supports the EEI comments that the timeframe proposed for Corrective Action Plans for R7 provide sufficient time to address freeze protection plans.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT’s response to EEI.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	Yes
Document Name	
Comment	

MRO NSRF agrees with the timelines proposed in R7 as the R7.3 already allows for the CAP to be updated as required, including timelines.

Likes 0	
Dislikes 0	

Response

Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Please see the SDT’s response to EEI question 9.

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	Yes
Document Name	

Comment

NRG supports staggered implementation plan, however there should not always be atime limit on what is expected to be done. Multiple units at the same site requiring the same remediation at the same time may require additional time to address. Perhaps the time step should be based upon number of units. For the most part, time frames appear reasonable from an implementation viewpoint.

However, the Standard subrequirement language is not clear that completion of plan needs to be completed either in 24 or 48 month period. It implies that only need to "specifiy action" within that time frame. Recommend SDT provide better clarity its intent that this is the expected completion date.

Likes 0	
Dislikes 0	

Response

Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	Yes
Document Name	

Comment

NRG supports staggered implementation plan, however there should not always be a time limit on what is expected to be done. Multiple units at the same site requiring the same remediation at the same time may require additional time to address. Perhaps the time step should be based upon number of units. For the most part, time frames appear reasonable from an implementation viewpoint.

However, the Standard subrequirement language is not clear that completion of plan needs to be completed either in 24 or 48 month period. It implies that only need to "specifiy action" within that time frame. Recommend SDT provide better clarity its intent that this is the expected completion date.

Likes 0	
Dislikes 0	

Response

Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI question 9.	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to provide the constraint declaration to the Balancing Authority and update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.	

Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees that the timeframes proposed are appropriate.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy agrees with the timelines proposed in R7 as the R7.3 already allows for the CAP to be updated as required, including timelines.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	

Comment	
Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	Yes
Document Name	
Comment	

Xcel Energy supports comments offered by EEI in response to question 9 of the comment form.

Likes 0	
Dislikes 0	

Response

Please see the SDT's response to EEI in response to question 9.

Natalie Johnson - Enel Green Power - 5

Answer	Yes
Document Name	

Comment

Enel North America Inc. agrees with the 24- and 48-month proposed timeline for existing and new freeze protection respectively but proposes the SDT clarify the timeframe from "months" to "calendar months" to align with Scenario 2 of the approved *ERO Enterprise CMEP Practice Guide, Implementation of "Annual" and "Calendar Month(s)"* in the Reliability Standards.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT agreed with this recommendation and made this change.

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	Yes
Document Name	

Comment

SIGE supports the intent of R7 but recommends striking "equipment" from R7.1.1 and R7.1.2.

Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing Corrective Action Plan timeframes and chose not to do this as the majority of industry supported the current timeframes.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Yes, this is better clarification than what was provided in EOP 12-1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE is concerned the timeframes leave the risk in place for longer than it needs to be. Texas RE requests the standard drafting team's reasoning for the 24 month and 48 month timeframes for completing a CAP.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The team determined, based on new plants and new freeze protections, that the timeline of 48 months was sufficient. Please see the Technical Rationale documents, which also goes into detail regarding this concern.	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

6. Do you agree that Requirement R8 is sufficient to inform the Balancing Authority of the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical or procedural justification.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

It is our opinion that only Requirement R8.1 and R8.2 are truly needed. TOP-003-5 R2 already requires the BA to include the operational limitations during local forecasted cold weather in its documented data specification. As the planning entity, the BA needs to know the operational parameters and capabilities of a GO's unit(s). If the BA determines that it also needs additional information (i.e. the Generator Cold Weather Constraint declaration), the BA already has the power to request this information via TOP-003-5. As written, the currently proposed Requirement R8.3 would subject the GO to double jeopardy if they do not provide the Generator Cold Weather Constraint declaration to the BA and the BA also includes this in its documented data specification.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Mia Wilson - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC

Answer	No
Document Name	

Comment

SPP would like the SDT to consider removing the statement in requirement *8.3 Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority*.

SPP has concerns with the proposed statement and recommends removing the statement from R8. Given there is no requirement for the Balancing Authority to do anything with these documents, there is no apparent reliability benefit to the Generator Owner and Generator Operator providing constraint declarations to the Balancing Authority. This requirement is purely administrative.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

The intent and basis for EOP 11-3 and EOP 12-1 as stated in the technical rationale for modifying EOP 11-2 was to separate the Balancing Authority requirements and the GO requirements. R8 brings the BA back into this standard which goes against the premise already set. We recommend this language requiring the BA to solicit GO data to remain in EOP 11-3 to keep the BA requirements out of EOP 12.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

Requirement R8, Part 8.3 stipulates that the declaration be provided to the Balancing Authority “in the format and at the interval sprecified by the Balancing Authority”. However, there is no requirement for the BA to specify this and the standard doesn’t apply to the BA. If this requirement is to stay this way, section 4.1 needs to include the BA and a requirement needs to be added for the BA to provide the required format and intervals.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather generator performance for reliability.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather genrator performance for relaibiltiy.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	

Comment	
Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather generator performance for reliability.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the language as TOP-003 and EOP-011 already cover the BA getting their needed information for cold weather generator performance for reliability.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No

Document Name	

Comment

The SRC agrees that Requirement R8 is a helpful, albeit incomplete, method of informing the Balancing Authority of the nature and existence of a constraint declaration. However, Balancing Authorities would be better informed of the potential impacts of the constraint declaration if Requirement R8, Part 8.3 also required the provision of the operating limitations referenced in Requirement R8, Part 8.2.

The SRC also recommends that Part 8.2 be revised to clarify that operating limitations should be updated at least annually, which would be consistent with Part 8.1.

Finally, the SRC recommends that the drafting team consider expanding Part 8.3 to also require GOs to provide constraint-related information to Reliability Coordinators and Transmission Operators, as information regarding generator availability and operating limitations may inform analysis of thermal, voltage, and stability limits and any associated Operating Plans.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	

Comment

AES CE believes that R8.3 requires a corresponding requirement in TOP-003 to ensure that BA specifies the format and intervals required for the GO to submit Generator Cold Weather Constraint declarations to them. AES CE has had to struggle with various BAs with the current IRO-010-4 and TOP-003-5 in ensuring that the minimum temperature data (from EOP-011-2) is provided to the BA in the right format as requested. So, without a corresponding requirement in TOP-003 for the BA, R8.3 will not have any reliability impact that FERC wants to address.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	No
Document Name	
Comment	
There needs to be a requirement of the Balancing Authority to establish the format and interval that the GO is required to adhere to.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No

Document Name	
Comment	
AEPC signed on to ACES comments: It is our opinion that only Requirement R8.1 and R8.2 are truly needed. TOP-003-5 R2 already requires the BA to include the operational limitations during local forecasted cold weather in its documented data specification. As the planning entity, the BA needs to know the operational parameters and capabilities of a GO's unit(s). If the BA determines that it also needs additional information (i.e. the Generator Cold Weather Constraint declaration), the BA already has the power to request this information via TOP-003-5. As written, the currently proposed Requirement R8.3 would subject the GO to double jeopardy if they do not provide the Generator Cold Weather Constraint declaration to the BA and the BA also includes this in its documented data specification.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
Enel North America Inc. does not agree that R8.3 is effective. The Balancing Authority already has the ability to request this information from Generator Owners through Reliability Standard TOP-003. Keeping this data request in EOP-012 creates an administrative requirement instead of one that promotes reliability if the Balancing Authority does not have a plan to request or use the data. See 138 FERC ¶ 61,193, Paraph 81, Criterion B which addresses Reliability Standard requirements that are immaterial to reliability that are "administrative, data collection/data	

retention; documentation; reporting; periodic updates; commercial or business practice; and redundant," has led to multiple NERC projects and subsequent FERC approval retiring existing requirements that meet these criteria.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren agrees with and supports NAGF comments on this question.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	

The NAGF believes that Requirements 8.1 and 8.2 address providing unit limitations to the BA to address reliability and therefore fully address FERC's concern raised in the order. Requirement 8.3 requires providing extraneous information, i.e. why and under what conditions a Generator Owner made a business decision. This information is not needed by the BA and can only be used to question decisions made by the Generator Owner, not address reliability.

The NAGF notes its concern that overloading entities with information extraneous to their needs makes it hard for the entity to find the pertinent data to allow for them to complete their responsibilities efficiently. Providing business decisions (which as structured may be a single sentence or a multi-page document that includes a root cause analysis, multiple quotes from vendors, etc.) to the Balancing Authority does not address reliability and instead is a documentation issue which has already been deemed immaterial to reliability (see paragraph 81 from the order in Docket RC11-6-000). Requirements 8.1 and 8.2 provides all necessary reliability information related to a declaration without providing information that is not pertinent to the Balancing Authority.

Instead of Requirement 8.3, NERC should have a reporting process for CAPs similar to what it uses for PRC-004. In this manner every CAP would be reported to NERC and these reports could be provided to FERC if FERC so desires. This would allow FERC to see what CAPs are not being completed and for what reason. If the issues are commercial in nature, then FERC can determine how best to address the lack of compensation as currently ordered in relation to this standard. The reports could also be provided to the Balancing Authorities of the reporting entities if the BA wishes to see them. In this manner, the questions related to business decisions would be kept out of a reliability compliance process while being made available to those that desire to evaluate the efforts being made by the Generator Owners.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Information related to changes to the current proposal associated with CAPS is contained in responses to other questions.

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No

Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	
Dislikes 0	

Response

Please see the SDT’s response to NAGF.

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE recommends modifying R8.3 to “Provide the Generator Cold Weather Constraint declaration and any updates annually to its **Planning Coordinator**.”

As currently written R8.3 looks like it is prescribing a requirement for the BAs to provide the GO with the format and interval for the Generator Cold Weather Constraint declaration. The BA is not an Applicable Function of EOP-012-2. TOP-003-2 R2 requires that BAs provide GOs with a data specification including data needed and the periodicity; however, this data is specific to the **Operations Planning Horizon** and **Real-time Monitoring**, while EOP-012-2 R8 is for the **Long Term Planning Horizon**. According to the NERC Reliability Functional Model Technical Document, Balancing Authority does not perform its actions in the **Long Term Planning Horizon**.

ISO-NE believes the appropriate function for the **Long-term Planning Horizon** would be the **Planning Coordinator** for this requirement.

In addition to the above comment, what was the justifications for the RC or TOP not receiving the constraint declaration since those entities perform Reliability Assessments, including assessments in the Long-term Planning Horizon?

Likes 0	

Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations in order to perform its monitoring balancing analysis functions is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy does not agree with the language proposed in R8.3. TOP-003 provides an avenue for the BA to make a request. Also, EOP-012-2 R8.1 already provides a periodicity. Therefore, the statement "... in the format and at the interval specified by the Balancing Authority" is not needed. NV Energy recommends removing 8.3 all together, as it is already sufficiently covered in TOP-003.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	No
Document Name	
Comment	

Buckeye supports the comments by ACES:

It is our opinion that only Requirement R8.1 and R8.2 are truly needed. TOP-003-5 R2 already requires the BA to include the operational limitations during local forecasted cold weather in its documented data specification. As the planning entity, the BA needs to know the operational parameters and capabilities of a GO's unit(s). If the BA determines that it also needs additional information (i.e. the Generator Cold Weather Constraint declaration), the BA already has the power to request this information via TOP-003-5. As written, the currently proposed Requirement R8.3 would subject the GO to double jeopardy if they do not provide the Generator Cold Weather Constraint declaration to the BA and the BA also includes this in its documented data specification.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC

Answer	No
Document Name	

Comment

SMUD and BANC agree with the comments submitted by the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Please see the SDT’s response to MRO/NSRF.

Daniel Roethemeyer - Vistra Energy - 5

Answer	No
Document Name	

Comment

We agree with the NAGF comments

Likes 0	
Dislikes 0	

Response

Please see the SDT’s response to NAGF.

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	No
Document Name	

Comment

The burden shoud be placed on the BA, much like any other data requests in other standards. This should not be part of this standard.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	
MRO NSRF does not agree with the language proposed in R8.3. TOP-003 provides an avenue for the BA to make a request. Also, EOP-012-2 R8.1 already provides a periodicity. Therefore, the statement *"… in the format and at the interval specified by the Balancing Authority"* is not needed. MRO NSRF recommends removing 8.3 all together, as it is already sufficiently covered in TOP-003	
Likes 0	
Dislikes 0	
Response	

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	
Comment	
Tri-State would like to suggest that 8.3 coincide with the 8.1 annual timframe or when updates to the limitations are made under 8.2. 8.3 should have a 90 day schedule as well.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	
WEC Energy Group supports the NAGFs comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	

Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
The intent and basis for EOP 11-3 and EOP 12-1 as stated in the technical rational for modifying EOP 11-2 was to separate the Balancing Authority requirements and the GO requirements. R8 brings the BA back into this standard which goes against the premise already set. We recommend this language requiring the BA to solicit GO data to remain in EOP 11-3 to keep the BA requirements out of EOP 12.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Generator owners communicate this information directly with our Transmission Operators. If the GO is to communicate any constraints it must go through the TOP who is responsible for system load.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

Parts 8.1 and 8.2 address providing unit limitations to the BA to address reliability. These address fully FERC's concern raised in the order. Part 8.3 requires providing extraneous

information, i.e. why and under what conditions a Generator Owner made a business decision. This information is not needed by the BA and can only be used to question decisions made by the Generator Owner, not address reliability.

As mentioned by FERC staff during one SDT call, there is concern that overloading entities with information extraneous to their needs makes it hard for the entity to find the pertinent data to allow for them to complete their responsibilities efficiently. Providing business decisions (which as structured may be a single sentence or a multi-page document that includes a root cause analysis, multiple quotes from vendors, etc.) to the Balancing Authority does not address reliability and instead is a documentation issue which has already been deemed immaterial to reliability (see paragraph 81 from the order in Docket RC11-6-000). Parts 8.1 and 8.2 provides all needed reliability information related to a declaration without providing information that is not pertinent to the Balancing Authority.

Instead of Part 8.3, NERC should have a reporting process for CAPs similar to what it uses for PRC-004. In this manner every CAP would be reported to NERC and these reports could be provided to FERC if FERC so desires. This would allow FERC to see what CAPs are not being completed and for what reason. If the issues are commercial in nature, then FERC can determine how best to address the lack of compensation as currently ordered in relation to this standard. The reports could also be provided to the Balancing Authorities of the reporting entities if the BA wishes to see them. In this manner, the questions related to business decisions would be kept out of a reliability compliance process while being made available to those that desire to evaluate the efforts being made by the Generator Owners.

Likes 0	
Dislikes 0	

Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements. Information related to changes to the requirements CAPs language is included in the responses to other questions.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	
The intent and basis for EOP 11-3 and EOP 12-1 as stated in the technical rational for modifying EOP 11-2 was to separate the Balancing Authority requirements and the GO requirements. R8 brings the BA back into this standard which goes against the premise already set. We recommend this language requiring the BA to solicit GO data to remain in EOP 11-3 to keep the BA requirements out of EOP 12.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	

Tacoma Power does not agree with the language proposed in R8.3. TOP-003 provides an avenue for the BA to make a request. Also, EOP-012-2 R8.1 already provides a periodicity. Therefore, the statement "... in the format and at the interval specified by the Balancing Authority" is not needed. Tacoma Power recommends that R8.3 is re-worded to the following: *"Provide the Generator Cold Weather Constraint declaration to the Balancing Authority."*

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements.

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	No
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Scott McGough - Georgia System Operations Corporation - 3,4

Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx

Comment

Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	Yes
Document Name	
Comment	
Xcel Energy supports comments offered by EEI in response to question 9 of the comment form.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT’s response to EEI.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	

Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM agrees that Requirement R8 is sufficient to inform the BA of potential impacts a constraint declaration may have on a generating unit's performance during an Extreme Cold Weather Temperature.	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
AZPS agrees that R8 is sufficient to inform the BA of the potential impacts a constraint declaration may have on the generating unit’s performance to its ECWT.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	

Please see the SDT's response to EEI.	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes

Document Name	
Comment	
Southern Company supports the EEI comments agreeing that R8 is sufficient to inform the BA of potential impacts to a generation unit's performance a constraint declaration may have.	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NPCC/RSC.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	

Comment	
Texas RE noticed that Requirement R8 simply requires a declaration to the Balancing Authority (BA). Texas RE recommends the Generator Owner also include justification for the Generator Cold Weather Constraint. Texas RE also recommends making it clear that if the capability and availability require updating, it should be clear that the update does not re-start the periodicity for Requirement R1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. The SDT has removed R8.3 from the requirements. Please note that NERC will be requesting information from GOs regarding constraint declarations, including justifications as part of its ongoing data reporting obligations to FERC. The SDT declines to add further details to what is proposed regarding declarations.	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_Initial%20Ballot%20EOP-012-2_June2023.docx

7. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Based on the table provided in the comment form, which shows EOP-012-1 and EOP-012-2 as both having a 10/1/2024 effective date, Tacoma Power is concerned that EOP-012-1 and EOP-012-2 will be implemented concurrently. Similar to precedent from the PRC-005 revisions, the EOP-012-2 implementation plan should immediately supersede the EOP-012-1 implementation plan. Since EOP-012-1 may not be effective before EOP-012-2 comes to play, it's more appropriate to supersede rather than "retire" EOP-012-1. For example, here’s the language used for the PRC-005-6 implementation plan: “Because PRC-005-6 incorporates all revisions to date, this implementation plan will supersede the implementation plans for PRC-005-2(ii), PRC-005-3, PRC-005-3(i), PRC-005-3(ii), PRC-005-4 and PRC-005-5 when PRC-005-6 becomes effective. PRC-005-2(i) will remain in effect and not be retired until entities are required to be compliant with R1, R2, and R5 of the PRC-005-6 standard under this implementation plan.” Tacoma Power recommends utilizing similar language in the EOP-012-2 implementation plan to make it clear that entities do not need to concurrently implement both EOP-012-1 and EOP-012-2 at the same time, that the EOP-012-2 implementation plan suipersedes EOP-012-1 (not a retirement), and how the phased implementation Requirements between the two versions should be handled.

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. Additional clarity will be provided on the two versions upon approval on Version 2.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	
We have been planning for implementation as noted in EOP 12-1. The more aggressive timeframe as provided in EOP 12-1 adds more complexity to our cold weather compliance plans, adds new data and should if anything extend the deadlines, not move them up by 3 years.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	

As stated earlier, no timeframe can be developed until EOP-012 is rephased in an understandable manner, especially as regards separating true freezing/congealing (dry bulb temperature and wind) from precipitation. These issues stand separate; a unit protected to -30 F with a 20 mph wind could be knocked offline at 32 F if it has a snow blockage vulnerability.

Likes 0	
Dislikes 0	

Response

Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The SDT has revisd the standard to provide more definition around the term freezing.

Richard Jackson - U.S. Bureau of Reclamation - 1

Answer	No
Document Name	

Comment

Reclamation does not agree with the new dates suggested for EOP-012-2, and recommends remaining with EOP-012-1 dates as no justification has been provided why they are being shortened.

Likes 0	
Dislikes 0	

Response

Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment	
We have been planning for implementation as noted in EOP 12-1. The more aggressive timeframe as provided in EOP 12-1 adds more complexity to our cold weather compliance plans, adds new data and should if anything extend the deadlines, not move them up by 3 years.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PGAE agrees and supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	No
Document Name	
Comment	

This time frame may not be sufficient to address freeze protection measures for a multi-unit generator facilities hence there should be a provision for MP to work with the balancing authority to develop and agree on a schedule for corrective action implementation.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
Smaller entities that have multiple projects need to go through a buget process and need time to implement corrections throughout their fleet. Smaller entites will find this a significant burden.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	

We agree with the NAGF comments

Likes 0	
Dislikes 0	

Response

Please see the SDT's response to NAGF.

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Buckeye supports the comments by ACES:

While the proposed Implementation Plan timeline for R3 is reasonably feasible for a GO that owns very few units, the proposed schedule is exponentially more difficult for a large GO, especially a GO with a diverse geographic footprint. We recommend a 24-month phased implementation plan for Requirement R3.

Likes 0	
Dislikes 0	

Response

Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.

Diana Torres - Imperial Irrigation District - 6

Answer	No
Document Name	

Comment	
IID believes that original Implementation plan should be honored, in order to let entities implement CAPs. Outages for Generation units are limited to winter season.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	
Minnesota Power supports the North American Generator Forum's (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to NAGF.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	

Based on the current understanding of what the SDT desires, the NAGF believes that this time frame is likely reasonable. However, the issues raised in other comments must be addressed to ensure that industry fully understands what is expected rather than having significant potential issues caused by the lack of clarity in the use of the term freezing and providing a clear design requirement instead of a strictly temperature-based concept that does not provide a reasonable level of reliability.

Likes 0	
Dislikes 0	

Response

Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The SDT has revised the standard to provide more definition around the term freezing.

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports NAGF comments on this question.

Likes 0	
Dislikes 0	

Response

Please see the SDT’s response to NAGF.

Natalie Johnson - Enel Green Power - 5

Answer	No
Document Name	

Comment

Enel North America Inc. does not agree with the implementation plan time clock starting on 10/1/2024; Enel does not object to the 12 calendar month implementation plan between the effective date of EOP-012-2 and Requirement R3; however, the concern is based on time period between the FERC approval date and the 10/1/2024 effective date of EOP-012-2. If there are considerable delays between the ballot body approval (and assumed standard language changes due to additional ballots), the time frame to become compliant with the final standard language could be considerably shortened. Additionally, Enel supports the NAGF's stance that "no timeframe can be developed until EOP-012 is rephased in an understandable manner, especially as regards separating true freezing/congealing (dry bulb temperature and wind) from precipitation. These issues stand separate; a unit protected to -30 F with a 20 mph wind could be knocked offline at 32 F if it has a snow blockage vulnerability. … The issues raised in other comments must be addressed to ensure that industry fully understands what is expected rather than having significant potential issues caused by the lack of clarity in the use of the term freezing."	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The SDT has revised the standard to provide more definition around the term freezing.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	
AEPC signed on to ACES comments: While the proposed Implementation Plan timeline for R3 is reasonably feasible for a GO that owns very few units, the proposed schedule is exponentially more difficult for a large GO, especially a GO with a diverse geographic footprint. We recommend a 24-month phased implementation plan for Requirement R3.	
Likes 0	

Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
Refer to comments in response to Question 5.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to Question 5.	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	No
Document Name	
Comment	
This is not enough time to implement these requirements. These time periods should be added to those invoked by EOP-012-1 Implementation Plan.	
Likes 0	
Dislikes 0	

Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	No
Document Name	
Comment	
No objections to proposed plan.	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
For the reasons discussed in its response to question 9, the SRC believes that the CAP implementation timelines in R7.1.1 and R7.1.2 should be shortened to 12 months and 24 months, respectively and that the language in both of these parts of Requirement R7 should be clarified.	
Likes 0	
Dislikes 0	
Response	

Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to “shortened time frame”, which could affect the cost of compliance.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to “shortened time frame”, which could affect the cost of compliance.	
Likes 0	
Dislikes 0	

Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to "shortened time frame", which could affect the cost of compliance.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation is concerned that this could currently be confused with having to comply with both implementation of version EOP-012-1 & EOP-012-2 as stated in the table provided; clarity is needed between the 2 versions for implementation. Additionally, no justification has been provided as to "shortened time frame", which could affect the cost of compliance.	
Likes 0	

Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	
Comment	
We have been planning for implementation as noted in EOP 12-1. The more aggressive timeframe as provided in EOP 12-2 adds more complexity to our cold weather compliance plans, adds new data and should, if anything, extend the deadlines, not move them up by 3 years.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	No
Document Name	
Comment	
While the proposed Implementation Plan timeline for R3 is reasonably feasible for a GO that owns very few units, the proposed schedule is exponentially more difficult for a large GO, especially a GO with a diverse geographic footprint. We recommend a 24-month phased implementation plan for Requirement R3.	

Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The Corrective Action Plan supports extensions to timing on freeze protection measures when justified.	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates. The SDT has revised the standard to provide more definition around the term freezing.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
EOP-012-1 **EOP-012-2** **Effective Date**	

10/1/2024

10/1/2024

Have Capability to Operate at ECWT or CAP Developed

4/1/2028

10/1/2025

CAP Completed

no end date specified

10/1/2027 (R7.1.1) or 10/1/2029 (R7.1.2)

Likes 0	
Dislikes 0	

Response

Thanks for your support. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	Yes
Document Name	

Comment

OPG agrees with NPCC/RSC's comments.

Likes 0	
Dislikes 0	

Response	
Please see the SDT’s response to NPCC/RSC.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy supports the proposed timeframe.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports EEIs comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT’s response to EEI.	

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

Southern Company supports the EEI comments and is not opposed to the implementation deadlines.

Likes 0	
Dislikes 0	

Response

Please see the SDT's response to EEI.

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	Yes
Document Name	

Comment

None.

Likes 0	
Dislikes 0	

Response

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	Yes
Document Name	

Comment	
The MRO NSRF agrees the shortened timeframe is accurate.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI.	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	Yes
Document Name	
Comment	
ITC supports EEI's comments.	

Likes 0	
Dislikes 0	

Response

Please see the SDT’s response to EEI.

Marcus Bortman - APS - Arizona Public Service Co. - 6

Answer	Yes
Document Name	

Comment

AZPS agrees with the proposed implementation deadlines.

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	Yes
Document Name	

Comment

NV Energy agrees the shortened timeframe is accurate.

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	Yes
Document Name	

Comment

ISO-NE has no additional comments.

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC

Answer	Yes
Document Name	

Comment

PNM agrees with the proposed implementation deadlines.

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Kimberly Turco - Constellation - 6

Answer	Yes

Document Name	
Comment	
Constellation has no additional comments Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	

Answer	Yes
Document Name	
Comment	
SIGE does not oppose the proposed implementation deadlines.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	
Document Name	
Comment	
Abstain from commenting.	
Likes 0	
Dislikes 0	
Response	

Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
As stated previously, Texas RE requests justification for the 24 month and 48 month timeframe for completed a CAP.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of industry supported the current dates.	

8. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical or procedural justification.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

See previous comments for questions 1 and 3.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. Please see responses to Questions 1 and 3.

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

Given we are not in support of these changes as written, meeting the key recommendations in The Report in a cost effective manner cannot be determined.

Likes 0	
Dislikes 0	

Response

Thank you for your response.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
We believe NERC should strongly consider exempting nuclear powered generating units from EOP-012-2. As a NERC Reliability Guideline (Generating Unit Winter Weather Readiness - Current Industry Practices – Version 3) issued in December 2020 states: "*It is recognized that nuclear power plants, in keeping with NRC regulation and INPO guidance already have more detailed Winterization and Summerization procedures than are expected by this document.*" The nuclear power industry is used to working under NRC regulation and INPO guidance in this area, and adding another layer of NERC requirements (potentially overlapping) adds an extra burden to the site staffs and confusion on what actions are necessary and required. We are not aware of any significant performance issues with nuclear generating units during the cold weather events that led to development of the EOP-012 standard.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT maintains that the cold weather report identified that nuclear generation experienced freezing issues during the event and did not suggest that nuclear generation should be excluded from these standards.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
For the reasons outlined in its responses to the other questions in these comments, including, but not limited to, the overly broad and ambiguous definition of a commercial constraint and the inconsistency of footnotes 1, 2, and 4 with FERC's directives, the SRC does not agree	

that EOP-012-2 as proposed meets the key recommendations in the Report or the directives in the FERC order. The SRC has proposed specific language that would ensure the standard meets its intended goal of enhancing reliability in a cost-effective manner.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Please see revisions to the definitions and standard to address your concerns.

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer	No
Document Name	

Comment

There are a limited number of vendors and material supplies available to make these changes. The implementation plan length does not take this into account. Implementation for R3 should be spread over 10 years.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT has decided to not make any changes to the Implementation Plan.

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	

Comment

AES CE is concerned about the lack of cost analysis being performed. Currently, as written, there is no basis to assume anything but unlimited cost potential with no economic recovery of these costs. AES CE also supports NAGF's comments.

Likes 0	
Dislikes 0	

Response

Thank you for your response.

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

The Standard is not clear for the hydraulic units in the powerhouse. It significantly increases compliance costs.

Likes 0	
Dislikes 0	

Response

Thank you for your response. Assuming the comment is asking if hydraulic units in the power house should be Cold Weather Critical Components, then the SDT response is that given the proposed definition, it is up to the GO to determine if the equipment is susceptible to freezing within the identified parameters.

Rhonda Jones - Invenergy LLC - 5,6

Answer	No
Document Name	

Comment

Invenergy is unable to quantify the overall costs and benefits to arrive at a definitive conclusion about the cost effectiveness of the current draft. To determine cost effectiveness, the overall benefit of the proposal must be measured against the overall cost, and neither NERC nor FERC has done that analysis. NERC has written volumes on the expected reliability benefits of the standard, yet it expects generators to spend unlimited sums to comply with the standard without the cost-benefit analysis.

The February 2021 Cold Weather Outages in Texas and the South Central United States (Nov. 2021) (the “Report”) recommended that “generating units need to be modified/retrofitted to perform under the adverse winter weather conditions that have been experienced at its location.” Report at 188-89. But the Report also emphasized the importance of compensating generators for these retrofits, noting specifically that “Generator Owners should have the opportunity to be compensated for the costs of retrofitting their units to operate to a specified ambient temperature and weather conditions.” Report at 191-92. So far, neither NERC, nor FERC (despite numerous asks by industry) has taken any steps to allow for such cost recovery. Invenergy remains concerned that certain generating units, including independent power producers, may be required to bear significant incremental costs to comply with the standard without a corresponding mechanism for recovering those costs.

In addition, the Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. Regarding cost recovery, FERC responded in the June rehearing order and instructed that generators have several procedural avenues available for recovering their prudently incurred compliance costs, but that the matter is outside the scope of a FPA 215 approval proceeding. Additionally, less restrictive criteria has been provided in the revised definition of Generator Cold Weather Constraint through the use of the common understanding of “good utility practice”.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

See previous comments for questions 1 and 3.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. Please see response to Questions 1 and 3.

Natalie Johnson - Enel Green Power - 5

Answer	No
Document Name	

Comment

It is difficult for the industry to determine the full cost implications of EOP-012-2. Particulary with the development of Corrective Action Plans as a result of extreme weather, it is premature, to determine at this time, the cost implications until it is fully known what is actually involved.

Likes 0	
Dislikes 0	

Response

Thank you for your comment.

Colin Chilcoat - Invenergy LLC - 6

Answer	No

Document Name	
Comment	
Invenergy is unable to quantify the overall costs and benefits to arrive at a definitive conclusion about the cost effectiveness of the current draft. To determine cost effectiveness, the overall benefit of the proposal must be measured against the overall cost, and neither NERC nor FERC has done that analysis. NERC has written volumes on the expected reliability benefits of the standard, yet it expects generators to spend unlimited sums to comply with the standard without the cost-benefit analysis. The *February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (the "Report") recommended that "generating units need to be modified/retrofitted to perform under the adverse winter weather conditions that have been experienced at its location." Report at 188-89. But the Report also emphasized the importance of compensating generators for these retrofits, noting specifically that "Generator Owners should have the opportunity to be compensated for the costs of retrofitting their units to operate to a specified ambient temperature and weather conditions." Report at 191-92. So far, neither NERC, nor FERC (despite numerous asks by industry) has taken any steps to allow for such cost recovery. Invenergy remains concerned that certain generating units, including independent power producers, may be required to bear significant incremental costs to comply with the standard without a corresponding mechanism for recovering those costs. In addition, the Commercial Constraint provision is so narrowly written that it fails to allow for any cost-benefit analysis. It appears that the only possible Commercial Constraint would be the cost of compliance being greater than the cost of retiring the generation unit. Invenergy suggests a less restrictive Commercial Constraint—not one that would incentivize the avoidance of making a capital improvement—but one that allows for a reasonable cost-benefit analysis of whether the benefit that would result from a prohibitively priced piece of equipment otherwise necessary for compliance is not worth the cost. The current Commercial Constraint provision is clearly unreasonable. For example, if equipment would improve performance during freezing temperatures by only one (1) degree to be compliant, the GO would have to purchase and install such equipment regardless of its cost, so long as the cost is less than retirement of the unit.	
Likes 0	
Dislikes 0	

Response

Thank you for your comments. Regarding cost recovery, FERC responded in the June rehearing order and instructed that generators have several procedural avenues available for recovering their prudently incurred compliance costs, but that the matter is outside the scope of a FPA 215 approval proceeding. Additionally, less restrictive criteria have been provided in the revised definition of Generator Cold Weather Constraint through the use of the common understanding of “good utility practice”.

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

As stated earlier, imposing retrofit obligations, no matter how slight the gain, unless they are so crushingly expensive as to cause a unit to be retired has nothing to do with cost effectiveness. New units should be made to meet the EOP-012-2 design criteria, existing ones should report their dry bulb temperature, DBT + wind and precipitation capabilities (three parameters, not all rolled into one) and GOs should then make commercial decisions regarding retrofitting of units subject to market make-right provisions. If NERC desires to have all units retrofitted, then NERC must address the compensation issue with FERC before a standard can be considered cost-effective. As written, there is no basis to assume anything but unlimited cost potential with no possible economic recovery of these costs.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. Regarding cost recovery, FERC responded in the June rehearing order and instructed that generators have several procedural avenues available for recovering their prudently incurred compliance costs, but that the matter is outside the scope of a FPA 215 approval proceeding. Additionally, less restrictive criteria have been provided in the revised definition of Generator Cold Weather Constraint through the use of the common understanding of “good utility practice”.

Alison MacKellar - Constellation - 5

Answer	No
Document Name	

Comment	
The introduction of the term "Generator Cold Weather Critical Component" and "Generator Cold Weather Reliability Event" as currently drafted could have an undue burden and potential cost impact to nuclear generating units to manage and maintain separate lists of components given the conflict between the NERC Standard defined term and the nuclear industry accepted defined term of a "Critical Component". Specifically for nuclear generating units "a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration" is problematic as it conflicts with the typical scoping and identification of a "Critical Component" that is based on a 20 percent plant transient and therefore nuclear generating units will be challenged with implementing and maintaining two separate criteria for critical components. This will not only be challenging but could also incur additional costs in initially defining and maintaining a component list. Constellation recommends that the drafting team either align the definition or provide an exemption for nuclear generating units to align with the existing implemented criteria for "Critical Components". Additionally, forcing retrofits through CAPs without any market driven compensation will put some GOs at a financial disadvantage with possibly limited reliability benefit to the BES. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The team is not aware of any conflict between these definitions which would prelude any adherence to both of these definitions. The cold weather report identify that nuclear generation experience freezing issues during the event and did not suggest that nuclear generation should be excluded from these standards.	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	

Comment	
Minnesota Power supports the North American Generator Forum's (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Please see response to NAGF.	

Kimberly Turco - Constellation - 6	
Answer	No
Document Name	
Comment	
The introduction of the term "Generator Cold Weather Critical Component" and "Generator Cold Weather Reliability Event" as currently drafted could have an undue burden and potential cost impact to nuclear generating units to manage and maintain separate lists of components given the conflict between the NERC Standard defined term and the nuclear industry accepted defined term of a "Critical Component". Specifically for nuclear generating units "a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration" is problematic as it conflicts with the typical scoping and identification of a "Critical Component" that is based on a 20 percent plant transient and therefore nuclear generating units will be challenged with implementing and maintaining two separate criteria for critical components. This will not only be challenging but could also incur additional costs in initially defining and maintaining a component list. Constellation recommends that the drafting team either align the definition or provide an exemption for nuclear generating units to align with the existing implemented criteria for "Critical Components". Additionally, forcing retrofits through CAPs without any market driven compensation will put some GOs at a financial disadvantage with possibly limited reliability benefit to the BES. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	

Dislikes 0	
Response	
Thank you for your comments. The team is not aware of any conflict between these definitions which would prelude any adherence to both of these definitions. The cold weather report identify that nuclear generation experience freezing issues during the event and did not suggest that nuclear generation should be excluded from these standards.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	No
Document Name	
Comment	
PNM has not completed a full assessment of cost at this point so not ready to confirm the cost effectivness of the project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	No
Document Name	
Comment	
Buckeye supports the comments by ACES: See previous comments for questions 1 and 3.	

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Please see response to Question 1 and 3.

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	No
Document Name	

Comment

Any additional remediation to retrofit existing units by definition does not correlate with addressing the reliability concerns in a cost effective manner. FERC must address the compensation issue before a standard can be considered for cost-effectiveness.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. FERC responded in the June rehearing order and instructed that generators have several procedural avenues available for recovering their prudently incurred compliance costs, but that the matter is outside the scope of a FPA 215 approval proceeding.

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	No
Document Name	

Comment

Any additional remediation to retrofit existing units by definition does not correlate with addressing the reliability concerns in a cost effective manner. FERC must address the compensation issue before a standard can be considered for cost-effectiveness.

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. FERC responded in the June rehearing order and instructed that generators have several procedural avenues available for recovering their prudently incurred compliance costs, but that the matter is outside the scope of a FPA 215 approval proceeding.	
Daniel Roethemeyer - Vistra Energy - 5	
Answer	No
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Please see response to NAGF.	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1	
Answer	No
Document Name	
Comment	
This is an incredibly burdensome standard for entities who routinely operate in extreme cold weather. Their operations will not be enhanced, and their reliability will not be improved. Entities like these will be subject to addtional compliance requirements, expense and process. Risk of non-compliance will increase to these entities due to adminstrative errors and a non-defect approach to compliance by auditors.	

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The team has endeavored to only include requirements that we think will have a reliability benefit and not unduly administratively burdensome. This is a continent-wide standard, please provide suggestions for changes that would be less burdensome.

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	No
Document Name	

Comment

PGAE agrees and supports the NAGF comments.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. Please see response to NAGF.

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

None.

Likes 0	

Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	
The changes to EOP-012 address the FERC Order directive, but "cost-effective" is a relative term. This standard will require many GOs to invest additional dollars and customers will bear that burden. If all GO's invest in or shut down their assets, then the market impacts will be distributed across the utilities.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
no.	
Likes 0	
Dislikes 0	

Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree. As annotated above, if there are any upgrades or new equipment installations required, this would create an undue burden on the GO/TO to accomplish this effort in a short amount of time without adding additional costs/manpower efforts.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
As stated earlier, imposing retrofit obligations, no matter how slight the gain, unless they are so crushingly expensive as to cause a unit to be retired has nothing to do with cost effectiveness. New units should be made to meet the EOP-012-2 design criteria; existing ones should report their dry bulb temperature, DBT + wind, and precipitation capabilities (three parameters, not all rolled into one) and GOs should then make commercial decisions regarding retrofitting of units subject to market make-right provisions. If NERC desires to have all units retrofitted, then NERC must address the compensation issue with FERC before a standard can be considered cost-effective.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. FERC responded in the June rehearing order and instructed that generators have several procedural avenues available for recovering their prudently incurred compliance costs, but that the matter is outside the scope of a FPA 215 approval proceeding.	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	No
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Please see response to NAGF.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	

Answer	Yes
Document Name	
Comment	
ISO-NE has no additional comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	

Marcus Bortman - APS - Arizona Public Service Co. - 6

Answer	Yes
Document Name	
Comment	
AZPS agrees.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	
Comment	

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Thank you for your response. Please see response to EEI.

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	Yes
Document Name	

Comment

OPG agrees with NPCC/RSC's comments.

Likes 0	
Dislikes 0	

Response

Thank you for your response. Please see response to NPCC/RSC’s comments.

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez

Answer	Yes
Document Name	

Comment

Likes 0	

Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Devon Tremont - Taunton Municipal Lighting Plant - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lindsey Mannion - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Standifur - Austin Energy - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Daniel Herring - DTE Energy - Detroit Edison Company - 3	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	
Document Name	
Comment	
Black Hills Corporation will not provide comment on cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	
Document Name	
Comment	
Black Hills Corporation will not provide comment on cost effectiveness.	

Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	
Document Name	
Comment	
Black Hills Corporation will not provide comment on cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	
Document Name	
Comment	
Black Hills Corporation will not provide comment on cost effectiveness.	
Likes 0	
Dislikes 0	
Response	

Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	
Xcel Energy supports comments offered by EEI in response to question 9 of the comments form.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response. Please see response to EEI.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	
Document Name	
Comment	
Ameren has no comment on the cost effectiveness of the project.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	

Document Name	
Comment	
NV Energy abstains from this comment as cost cannot be determined until entities develop CAPs.	
Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	
Document Name	
Comment	
ITC supports EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response. Please see response to EEI.	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	
Document Name	
Comment	

The MRO NSRF abstains from this comment as cost cannot be determined until entities develop CAPs.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	
Document Name	
Comment	
Southern Company cannot comment on the cost effectiveness of the modifications as this can’t be known until after implementation.	
Likes 0	
Dislikes 0	
Response	

9. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	
Document Name	
Comment	
There are too many changes to cold weather standard too soon. The industry needs to catch up and work on the preious versions before we are ready for incorporating new requirements and obligations in our businesses.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	
Document Name	
Comment	
OPG agrees with NPCC/RSC's comments and has the following additional comments: i. Considerations should have been given/adopted for generating units that have historically operated in temperatures below 32 degrees Fahrenheit (zero degrees Celsius). ii. EOP-011-02, Requirement 7.3.2 had an “or” between points 7.3.2.1, 7.3.2.2, and 7.3.2.3.	

When this requirement carried over into EOP-012-02 under Requirement 1.2.2, the "or" was omitted between the corresponding first two points. The "or" should be added again between the first two points.

iii. Under the Term Section for "Fixed Fuel Supply Component" of EOP-012-02, please consider including

explicit written exception for "water" as a fuel supply to the definition of fuel supply for Hydro.

iv. For Requirement R5 under EOP-012-02, suggest instead of annual training, have in place an annual WO (i.e. as the reminder) and Cold Weather Preparedness Training every 3 years.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT has added language into M1 allowing operating data or engineering analysis to be used as evidence to support a generating unit's minimum temperature.

Per the NERC style rules, items listed in bullets have an implied "or" between them.
Water for a hydro plant is considered outside the control of the generating unit. Therefore, it is not intended to be freeze protected.

The SDT was required by the SAR to change the training requirement to a one-year requirement.

Sean Steffensen - IDACORP - Idaho Power Company - 1

Answer	
Document Name	

Comment

- R1.2.2 Since the ECWT is calculated with the dry bulb temperature, please provide example of how the concurrent wind and precipitation should be incorporated.
- The first bullet point under R1.2.2 states "Design temperature **and** if available, concurrent wind speed and precipitation." In EOP-011-2, "design temperatures" was followed by an "or". At Idaho Power, only a couple generators available design temperatures. Please give an acceptable option for units that do not have an available design temperature.

- R2 includes the term “self-commits”. Please define this.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. If design temperature is not available, the GO should state this and use one of the alternative methods listed in the other bullets of 1.2.2. The SDT discusses the incorporation of wind and precipitation in the Technical Rationale.

“Self commits” refers to units that are intended to run below 32 degrees.

Donald Lock - Talen Generation, LLC - 5

Answer	
Document Name	

Comment

1. The word “component” in the terms “Generator Cold Weather Critical Component,” “Fixed Fuel Supply Component” and their definitions should be changed to, “equipment or systems.” The water and steam systems of fossil and combined cycle plants consist of at least hundreds, more likely thousands of components (pipe, tubing, tees, elbows, valves, traps, transmitters, manifolds etc), all protected by a single measure (heat tracing and insulation). Making GOs list them all would be crushingly burdensome, with no BES reliability value whatsoever. The same is true of instrument air systems, which again have a single freeze protection measure (the dryer). We should be allowed to simply declare for example,

“Pump room – close windows before the onset of winter,” instead of having to list every item in this room.

Higher granularity is needed at times, though, and EOP-012-2 should require GO/GOPs to focus where the action is, which for conventional generation plants is transmitters that can trip units. A list should be required in this respect, noting that we are once again talking about systems and not components (freezing generally occurs in the impulse lines, not the transmitters themselves). Having to list every pipe run, section of tubing, valve, fitting, door, window, louver etc in the plant would constitute squandering our limited resources. We do support however preparing a list of cold weather critical transmitter systems, so that these key items (including the manifolds and impulse lines) can be prioritized properly out of the innumerable components affected by cold weather. The standard as presently written detracts from BES reliability rather than augmenting it for real-world (i.e. resource-limited) situations, due to not allowing GO/GOPs to prioritize their work.

2. The term, “a specified start-up time,” in the Generator Cold Weather Reliability Event definition is excessively vague. What time - to synchronize? To reach the minimum stable load? Full load? A cold start? Warm start? Specified by whom – the plant? The BA/RC/TOP? Specified how – in the IRP-010/TOP-003 data specification? In the MOD-032 report?

It should be changed to, “the startup time agreed-to by the GO/GOP for the extreme cold weather conditions at hand, if more than four hours of delay was caused by genuine freezing of equipment.” A GO should not be punished, for example, if a unit capable of starting within eight hours in the summer unexpectedly took twelve and a half hours during a blizzard because the outside operators had to shovel their way through snowdrifts. An extreme cold weather cold-startup time (ECWCST) reported to the Transmission Operator,” and GOs should in turn be required to state an ECWCST.

None of the BA/RC/TOPs we deal with currently request such winter vs non-winter information for MOD-032, IRO-010 or TOP-003, and that’s part of the problem. A unit with a typical cold-startup time of eight hours might normally need twelve hours when at the ECWT. This is a fact of life, to be taken into account by the TOP when dispatching units, not a threat to BES reliability. One could also ask for at-ECWT hot-startup and warm-startup times, but this would constitute getting over-complicated.

3. R1 should be amended to cover first-time calculation of the ECWT, instead of beginning with criteria for recalculations. Alternatively, make R4 the new R1 (EWCT calculation), pushing the present R1 (recalculation) to the #2 spot.

4. There should be a footnote or Guidance section statement noting that the ECWT calculated for responding to NERC’s May 2023 winterization Alert may be used as the first-time identification of this figure for EOP-012 compliance; one doesn’t need to make an update upon EOP-012 becoming effective. This material should also state that data may be drawn from any nearby airport. One doesn’t need to prove which is the closest, where several such facilities exist. Add also that plant-measured readings are acceptable but not mandatory or even preferred. Our experience is that it is difficult to obtain accurate weather data at a conventional power plant.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT has updated the GCWCC definition to include systems. The definition for Generator Cold Weather Critical Component has been modified to exclude devices in climate-controlled areas that are maintained above 32 degrees F. The SDT developed the process used by the NERC May 2023 Winterization Alert and it is the recommended practice for calculating the ECWT. To address concerns about "a specified startup time" the SDT will provide clarity in the Technical Rationale.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	
Document Name	
Comment	
There are too many changes to cold weather standard too soon. The industry needs to catch up and work on the preious versions before we are ready for incorporating new requirements and obligations in our businesses.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	
Document Name	
Comment	
None at this time.	

Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	
Document Name	
Comment	
WEC Energy Group supports EEIs additional comments.	
Likes 0	
Dislikes 0	
Response	
Please see the SDT's response to EEI.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	
Document Name	
Comment	
Southern Company supports the EEI comments.	
Likes 0	
Dislikes 0	
Response	

Please see the SDT’s response to EEI.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	
Document Name	
Comment	
PGAE agrees and supports the NAGF comments. PGAE has the following additional comments: The previous draft version has a section 4.2.2 “Exemptions” that has been deleted. PGAE disagrees with the removal of this section. Some generators in the PGAE portfolio have Extreme Cold Weather Temperature higher (warmer) than 32 degrees Fahrenheit. These generator stations do not have specific cold weather equipment or annual maintenance plans or actions taken for cold weather season preparations. These types of Generators need a clearly defined exemption process, such as what was issued for Industry use in EOP-012-1, section 4.2.2. The current exemption notes are unclear of whether or not generating units that have a ECTWS warmer that 32 degrees Fahrenheit are exempt. The notes states in part: Generating unit(s) that do not self-commit or are not required to operate at or below a	

temperature of 32 degrees Fahrenheit….are exempt. PGAE recommends revising all the notes to state: "Generating unit(s) that do not self-commit, are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) or have a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) , but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement".	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has not completely removed the exemptions. They have been moved to different parts of the standard to reduce confusion. This is in response to the FERC order that wanted all generation included.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	
Response	
Abbas Munir - Bruce Power - 5 - NPCC	
Answer	
Document Name	
Comment	

No further comments	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	
Document Name	
Comment	

- The NSRF would like the SDT to consider adding the word “system” to the Generator Cold Weather Critical Equipment definition. The NERC defined term was created in response to the FERC/NERC report Key Recommendation 1a where it recommends that NERC Reliability Standards be revised *“To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start.”*

In addition to the FERC/NERC report, the *NERC Reliability Guideline – Generating Unit Winter Weather Readiness – Current Industry Practices* also consistently refers to *“…critical components, systems, and other areas of vulnerability which may experience freezing problems or other cold weather operational issues.”*

Omitting the word system from the definition could introduce opportunities during CMEP activities to compel entities to provide a list of individual components of systems rather than the systems themselves. This could potentially create an unnecessary administrative burden for registered entities.

One example of the challenge this interpretation could present is in the nuclear industry where INPO AP-913 already defines critical components in a similar manner (See excerpt from INPO AP-913 at the end of this comment) as the proposed terms in EOP-012-2 but with a key difference of a 20% derate threshold in INPO AP-913 versus a 10% in the proposed NERC term. The differing criteria would cause that industry to maintain two separate base lists of critical components where they otherwise could use one and then determine the equipment susceptible to freezing. While changing the criteria in the NERC Generator Cold Weather Reliability Event definition to a 20% derate threshold would alleviate the increased administrative task for the nuclear industry it would still create an additional burden for non-nuclear generation. Using the word “system” would alleviate that interpretation concern and allow entities to focus on the intent of the Standard.

Proposed language for NERC term:*“Generator Cold Weather Critical Component - Any generating unit component, **system** or associated Fixed Fuel Supply Component that is under the Generator Owner’s control and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.”*

INPO-913:

“A component shall be classified as critical if a credible single-active component failure will directly result in any of the following unacceptable consequences:

- *reactor scram or turbine trip that will result in a reactor scram (SPV)*
- *significant power transient of greater than 20 percent plant transient (Operational Loss Event)*
- *mitigating system performance indices (MSPI)-monitored component failure*
- *any single failure that causes a complete loss of any of the following critical safety functions*
    - *core, reactor coolant system (RCS) or spent fuel pool (SFP) heat removal*
    - *containment isolation, temperature or pressure*
    - *}reactivity control*
    - *vital alternating current (AC) electrical power*
- *a single equipment failure that results in the complete loss of a Maintenance Rule high-safety-significant or risk-significant function”*

- The MRO NSRF would like the SDT to consider adding clarifying language to R5. The current language allows for interpretation during CMEP activities regarding who should receive the training. The MRO NSRF would like to propose the following language:

"R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s), ***as identified by the responsible entity,*** *developed pursuant to Requirement R4."*

- The MRO NSRF would like the SDT to consider adding clarifying language to R7.4 to better align with the existing proposed language in M7. Because the last sentence in M7 does not correspond fully to language in R7.4 and the Measures are not enforceable, we believe that adding a couple words from M7 to the R7.4 requirement will clarify what documentation is required when claiming a Generator Cold Weather Constraint based on a CAP.

The existing measurement for R7 stipulates "Any declaration shall contain dated documentation to support constraints identified by the Generator Owner". However, R7.4 does not require a dated declaration.

Proposed language for 7.4: *"Document in a* ***dated*** *declaration, with* ***supporting*** *justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan."*

- The MRO NSRF is extremely concerned about the method by which the SDT is considering ECWT regarding design requirements and also the method and degree by which cooling due to wind and the effects of precipitation are being considered.

For example, R2.1 requires new units to be able to operate at the unit's ECWT for a period of not less than 12 hours and with a sustained concurrent wind speed of 20 mph. If a unit was to experience conditions of a temperature equal to the ECWT for a period of time equal to 12 hours but with a sustained wind speed of 30 mph, the Generator Owner would be required to perform a CAP if one of the 3 criteria for a Generator Cold Weather Reliability Event was met, regardless of the fact that unit was operating at conditions that exceed the design requirements set forth by THIS standard. There are many other scenarios that could occur where a unit could be found to be deficient as per R6 and require a CAP while operating at conditions that far exceed the severity, in terms of cooling effect or heat loss, which is required by R2 or R3, as applicable.

The MRO NSRF suggests the following change:

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control *(and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature, REMOVE)* during a period where the facility experienced conditions (including considerations for temperature, duration, and wind speed) that would cause freezing at a rate equal to or at a rate slower than the design conditions set forth by this Standard:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time;

or

(3) a Forced Outage.

Likes 0	
Dislikes 0	

Response

Thank you for your comments.

The SDT has updated the GCWCC definition to include systems.

After review, the SDT has chosen to keep the Generator Cold Weather Reliability Event definition the same, as the inclusion of the ECWT is fundamental to the standard.

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	
Document Name	

Comment

See comments submitted by Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Thank you for your comment.

Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 1

Answer	
Document Name	

Comment

This proposed standard needs major revisions to assure the compliance burden to smaller utilities who operate traditionally in severe weather are not negatively impacted do to compliance risks and administrative burdens.

Likes 0	
Dislikes 0	

Response

Thank you for your comment.

Daniel Roethemeyer - Vistra Energy - 5

Answer	
Document Name	
Comment	
We agree with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	
Document Name	
Comment	
Regarding the requirements under R4, a generator must develop, implement and maintain a preparedness plan to address identified critical components. However, for generators that experience an Extreme Cold Weather reliability event and a identified critical component (that has been protected) fails resulting in such an event, how would this be handled in the enforcement of the standard? Please explain if this is a violation of the standards. This standard applies only to generator owners. What about interconnection leads or components that potentially are subject to freezing and can also fail during freeze events? Are these in scope? This is especially impactful for generators that own switchyard equipment.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comments. In the event of a critical component failure, a CAP would be required to correct the failure. The standard is not a performance standard, and as such, failures of components are not in and of themselves a violation of the standard. As to the scope of the standard, the SDT is bound by the SAR to look at the generation components that are susceptible to failure due to freezing. While interconnection leads or other components may be susceptible to freezing, they are not within the scope of the SDT effort.

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	
Document Name	

Comment

Regarding the requirements under R4, a generator must develop, implement and maintain a preparedness plan to address identified critical components. However, for generators that experience an Extreme Cold Weather reliability event and a identified critical component (that has been protected) fails resulting in such an event, how would this be handled in the enforcement of the standard? Please explain if this is a violation of the standards.

This standard applies only to generator owners. What about interconnection leads or components that potentially are subject to freezing and can also fail during freeze events? Are these being considered? This is especially impactful for generators that own switchyard equipment.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. In the event of a critical component failure, a CAP would be required to correct the failure. The standard is not a performance standard, and as such, failures of components are not in and of themselves a violation of the standard.

As to the scope of the standard, the SDT is bound by the SAR to look at the generation components that are susceptible to failure due to freezing. While interconnection leads or other components may be susceptible to freezing, they are not within the scope of the SDT effort.

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	
Document Name	

Comment

Buckeye supports the following comments made by ACES:

Extreme Cold Weather Temperature: The flexibility and intent behind using the “lowest 0.2 percentile” is greatly appreciated; however, the requirement to use a fixed start date seems a bit excessive. By using a fixed start date, the dataset will grow by 10,824 data points every 5 years when the ECWT is recalculated.
Given the inherent difficulty of compiling a dataset containing greater than 52,000 data points and then calculating the lowest 0.2 percentile, we recommend modifying the definition to remove the requirement to use a fixed data start date of 01/01/2000.
Our proposed modification to the definition would be: “The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from the previous 20 years immediately prior to the date the temperature is calculated. “
R4.1 (footnote 3): By including the stipulation that the GO shall “include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature” in a footnote, the SDT is setting the GO up for failure. If it is the intent of the SDT to require the GO to keep records of each ECWT calculation performed by the entity to ensure the lowest value is always captured, then this language should be included in a Requirement and not in the footnotes.

R5: Regarding the proposed verbiage requiring “generating unit-specific training”, it is our opinion that this could be overly burdensome for stations with multiple units; particular for those stations with multiple units of a similar design (a.k.a. “sister” units). Recommend modifying this requirement to require station-specific training in lieu of generating unit-specific training.
It is our opinion that this modification will allow the GO/GOP the flexibility to develop their training modules with an appropriate level of detail to sufficiently train station personnel without requiring them to create multiple modules with similar or identical content.
R6. Concerning the proposed timeline for the development of a CAP, it is our recommendation that the July 1st date be removed from this requirement. The rationale for this recommendations is thus: 150 days prior to July 1st is Feb 1st for non-leap years and Feb 2nd for leap years. Moreover, the July 1st timeline is further condensed if a Generator Cold Weather Reliability Event (GCWRE) occurs in March or April. Lastly, the stated intent of the timeframe options within the Technical Rationale is to allow GOs to review multiple events holistically following a winter season. In certain areas of the country, a GCWRE could realistically occur as early as late-October. In this instance, the latest possible date for the development of a CAP would be March 30th.

Given that it is also realistic for a GCWRE to occur in March, 150 days seems a reasonable number of days to cover all but the most extreme scenarios. Therefore, we recommend removing the hard deadline of July 1st.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. It is expected that GOs will use modern computer systems and software to calculate and update ECWT and the additional data will not be an undue burden.
Regarding R5: The SDT believes the wording in the standard already allows this kind of flexibility.
Regarding R6: The July 1st date is intended to provide the opportunity to complete the CAP prior to the next winter season if possible.

Stewart Yuen - Nuclear Energy Institute - NA - Not Applicable - NA - Not Applicable

Answer	
Document Name	

Comment

From the attached NEI letter date 7/20/2023:

On behalf of the Nuclear Energy Institute's (NEI){C}[1] members (hereinafter referred to as industry), we provide some comments on Project 2021-07, "Extreme Cold Weather Grid Operations, Preparedness, and Coordination."

The introduction of the term "Critical Component" as currently drafted conflicts with the existing definition used across the nuclear industry and will create unnecessary confusion for nuclear generating units to manage.

In the proposed draft of EOP-012-2 the term “Generator Cold Weather Critical Component” is defined as “[a]ny generating unit component or associated Fixed Fuel Supply Component, that is under the Generator Owner’s control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.”

A “Generator Cold Weather Reliability Event is further” defined as events “for which the apparent cause(s) is due to freezing of equipment within the Generator Owner’s control and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature.” One of the events listed is:

{C}(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration

Specifically for nuclear generating units, “a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration” is problematic as it conflicts with the nuclear industry standard definition of a “Critical Component” as defined in industry Equipment Reliability guidance documents. Specifically, the determination of a “critical component” in this context is associated with a credible single-active component failure that will directly result in certain unacceptable consequences. One of those consequences listed is a “significant power transient of greater than 20 percent plant transient (Operational Loss Event)”. It should be noted that this includes any single active component failure that causes the 20% derate, so components whose active failure is a result of cold weather would already be considered critical components.

Additionally, since the nuclear industry has implemented the 20% derate criteria to identify critical components as a measure of equipment reliability, the U.S. nuclear fleet overall capability factor has been consistently between 91% and 92.5 % since 2017 which is an industry best benchmark for equipment reliability.

Without revising or aligning the NERC Standard newly defined term of “a forced derate of more than 10%” to the nuclear industry defined term of “greater than a 20 percent plant transient” the nuclear generating units will be burdened with managing two separate criteria for critical components. This would generate confusion and impose an unnecessary burden on the nuclear industry.

NEI recommends that the drafting team either align the NERC Standard definition with the existing and currently implemented criteria under nuclear industry guidance documents or provide an exception for nuclear generating units.

{C}[1] The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The complete term is "Generator Cold Weather Critical Component". This term and its associated definition are not meant to replace or supplement the nuclear industry's use of "Critical Component".

The FERC order regarding cold weather reliability mandated that there were no units exempted from these standards.

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin

Answer	
Document Name	

Comment

ITC supports EEI's comments.

Likes 0	
Dislikes 0	

Response

Please see the SDTs response to EEI.

Bret Galbraith - Seminole Electric Cooperative, Inc. - 6

Answer	
Document Name	

Comment

1. The SDT’s Extreme Cold Weather Temperature uses a percentile of 0.2. This value consists of a significant digit in the tenth decimal. Using this rationale, when a GO calculates its R1 value, if on year one the GO calculated a temperature of 23.8 F, but then on year 5 the GO recalculated and its subsequent temperature was 23.6 F, it appears that a GO may need to review and update its plans again for a mere 0.2 F change. Please confirm how many significant digits an entity is required to go out to when calculating R1 temperatures.

2. For R1, Seminole suggests a baseline temperature, akin to what NERC has implemented in many PRC Standards, and then a required deviation from that value that would trigger a re-review. For example, if an entity’s initial calculation is 10.5 F, then a 5 F decrease is needed in order to set up a new review of all of its cold weather preparedness plans. A review of a GO’s plan should not be required for minute decreases in temperature across the board, and if the SDT is afraid of some critical component limit being hit by the lower temperature, a carve out for this concern could be worked into the proposed language that would trigger a re-review.

3. In R2, NERC is using only 2 significant digits when it states “at or below a temperature of 32 degrees F”. If an entity calculates its temperature to be 32.5F, Seminole understands that it will round this value up to 33F for R2. Seminole would like clarification from the SDT if the calculated Extreme Cold Weather Temperature value is calculated to 32.4 F, is this value “greater” than 32 F or is it “equal” to 32 F?

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The 0.2 percentile used for the calculation does not dictate a significant digit. The GO is free to round to the nearest whole degree or fraction thereof as they deem appropriate. The standard does not require an accuracy greater than what is provided by available weather data.

Lindsey Mannion - ReliabilityFirst - 10

Answer	
Document Name	
Comment	
RF appreciates the work of the Standard Drafting Team on this project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments and support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	
Document Name	
Comment	
NV Eneergy would like the SDT to consider adding the word "system" to the Generator Cold Weather Critical Equipment definition. The NERC defined term was created in response to the FERC/NERC report Key Recommendation 1a where it recommends that NERC Reliability Standards be revised *"To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start."* In addition to the FERC/NERC report, the *NERC Reliability Guideline – Generating Unit Winter Weather Readiness – Current Industry Practices* also consistently refers to *"…critical components, systems, and other areas of vulnerability which may experience freezing problems or other cold weather operational issues."* Omitting the word system from the definition could introduce opportunities during CMEP activities to compel entities to provide a list of individual components of systems rather than the systems themselves. This could potentially create an unnecessary administrative burden for registered entities.	

One example of the challenge this interpretation could present is in the nuclear industry where INPO AP-913 already defines critical components in a similar manner (See excerpt from INPO AP-913 at the end of this comment) as the proposed terms in EOP-012-2 but with a key difference of a 20% derate threshold in INPO AP-913 versus a 10% in the proposed NERC term. The differing criteria would cause that industry to maintain two separate base lists of critical components where they otherwise could use one and then determine the equipment susceptible to freezing. While changing the criteria in the NERC Generator Cold Weather Reliability Event definition to a 20% derate threshold would alleviate the increased administrative task for the nuclear industry it would still create an additional burden for non-nuclear generation. Using the word "system" would alleviate that interpretation concern and allow entities to focus on the intent of the Standard.

Proposed language for NERC term:*"Generator Cold Weather Critical Component - Any generating unit component,* ***system*** *or associated Fixed Fuel Supply Component that is under the Generator Owner's control and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event."*

INPO-913:

"A component shall be classified as critical if a credible single-active component failure will directly result in any of the following unacceptable consequences:

reactor scram or turbine trip that will result in a reactor scram (SPV)

significant power transient of greater than 20 percent plant transient (Operational Loss Event)

mitigating system performance indices (MSPI)-monitored component failure

any single failure that causes a complete loss of any of the following critical safety functions:

core, reactor coolant system (RCS) or spent fuel pool (SFP) heat removal

containment isolation, temperature or pressure

reactivity control

vital alternating current (AC) electrical power

a single equipment failure that results in the complete loss of a Maintenance Rule high-safety-significant or risk-significant function"

NV Energy would like the SDT to consider adding clarifying language to R5. The current language allows for interpretation during CMEP activities regarding who should receive the training. NV Energy would like to propose the following language:

"R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s), ***as identified by the responsible entity,*** *developed pursuant to Requirement R4."*

NV Energy would like the SDT to consider adding clarifying language to R7.4 to better align with the existing proposed language in M7. Because the last sentence in M7 does not correspond fully to language in R7.4 and the Measures are not enforceable, we believe that adding a couple words from M7 to the R7.4 requirement will clarify what documentation is required when claiming a Generator Cold Weather Constraint based on a CAP.

The existing measurement for R7 stipulates "Any declaration shall contain dated documentation to support constraints identified by the Generator Owner". However, R7.4 does not require a dated declaration.

Proposed language for 7.4: *"Document in a* ***dated*** *declaration, with* ***supporting*** *justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan."*

NV Energy is extremely concerned about the method by which the SDT is considering ECWT regarding design requirements and also the method and degree by which cooling due to wind and the effects of precipitation are being considered.

For example, R2.1 requires new units to be able to operate at the unit's ECWT for a period of not less than 12 hours and with a sustained concurrent wind speed of 20 mph. If a unit was to experience conditions of a temperature equal to the ECWT for a period of time equal to 12 hours but with a sustained wind speed of 30 mph, the Generator Owner would be required to perform a CAP if one of the 3 criteria for a Generator Cold Weather Reliability Event was met, regardless of the fact that unit was operating at conditions that exceed the design requirements set forth by THIS standard. There are many other scenarios that could occur where a unit could be found to be deficient as per R6 and require a CAP while operating at conditions that far exceed the severity, in terms of cooling effect or heat loss, which is required by R2 or R3, as applicable.

NV Energy suggests the following change:

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control *(**and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature, REMOVE**)* during a period where the facility experienced conditions (including considerations for temperature, duration, and wind speed) that would cause freezing at a rate equal to or at a rate slower than the design conditions set forth by this Standard:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time;

or

(3) a Forced Outage.

Likes 0	
Dislikes 0	

Response

Thank you for your comments.

The SDT has updated the GCWCC definition to include systems.
After review, the SDT has chosen to keep the Generator Cold Weather Reliability Event definition the same, as the inclusion of the ECWT is fundamental to the standard.

Diana Torres - Imperial Irrigation District - 6

Answer	
Document Name	

Comment

None

Likes 0	
Dislikes 0	

Response

Nicolas Turcotte - Hydro-Quebec (HQ) - 1

Answer	

Document Name	
Comment	

- Considerations should have been given/adopted for generating units that have historically operated in temperatures below 32 degrees Fahrenheit (zero degrees Celsius).
- EOP-011-02, Requirement 7.3.2 had an "or" between points 7.3.2.1, 7.3.2.2, and 7.3.2.3. When this requirement carried over into EOP-012-02 under Requirement 1.2.2, the "or" was omitted between the corresponding first two points. The "or" should be added again between the first two points
- Under the Term Section for "Fixed Fuel Supply Component" of EOP-012-02, please consider including explicit written exception for "water" as a fuel supply to the definition of fuel supply for Hydro.
- For Requirement R5 under EOP-012-02, suggest instead of annual training, have in place an annual WO (i.e. as the reminder) and Cold Weather Preparedness Training every 3 years.

- In the standard (R2 and R3), NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, for certain entities, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

- R4 of the standard requires having a preparation plan (or plans) for operation in cold weather and having specific training for each production group on cold protection measures (R5). As cold weather operations are part of our normal operations in the winter in Canada, these elements are already an integral part of our operating frameworks without necessarily being a dedicated document, but rather measures applicable to each plant are incorporated in the operator training program, for example.

- We reiterate that the standard represents an administrative burden for generating units are already regularly called upon during extreme cold weather, such is the case in Canada.

Likes 0	
Dislikes 0	
Response	

Thank you for your comments. The SDT has added language into M1 allowing operating data or engineering analysis to be used as evidence to support a generating unit's minimum temperature.

Per the NERC style rules, items listed in bullets have an implied "or" between them.

Water for a hydro plant is considered outside the control of the generating unit. Therefore, it is not intended to be freeze protected.

The SDT was required by the SAR to change the training requirement to a one-year requirement.

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	
Document Name	

Comment

ISO-NE agrees with the SRC that R1 should be revised, so that the ECWT is calculated **annually** and updated in the GO's Cold Weather Preparedness Plan.

ISO-NE also recommends that the GO Cold Weather Preparedness Plan outlined in R4 be moved to R1 and should include all of the currently written R1 as Sub-requirements of the Preparedness plan. This would makes logical sense since the parts of R1 are referenced in the Current R4.1 and 4.2 to be included in the preparedness plan *"as described in R1"* and *"as described in Part 1.2"*.

This would be consistent with the layout of other NERC Standards that require an "Operating Plan" such as EOP-011 R1 and R2 which both state that *"Each TOP/BA shall develop, maintain, and implement one or more Reliability Coordinator-reviewed Operating Plan(s) to mitigate operating Emergencies in its TOP/BA Area. The Operating Plan(s) shall include the following, as applicable: ..."*

Suggested Edit:

R1. Each Generator Owner shall develop, maintain, and implement one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]

1.1. The lowest calculated Extreme Cold Weather Temperature for each unit.

1.1.1. Annually, each Generator Owner shall, for each of its applicable generating unit(s):

1.1.1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) and identify the calculation date and source of temperature data; and

1.1.1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within six months of the recalculation.

1.2. **Annually,** identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Fuel switching capabilities; and

1.2.1.4. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature and if available, concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes concurrent wind speed and precipitation.

1.3. Documentation identifying the Generator Cold Weather Critical Components;

1.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

1.5. **Annual** inspection and maintenance of generating unit(s) freeze protection measures.

M1. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R1. Examples of documentation to demonstrate inspections and maintenance has been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT chose a five-year re-calculation date as we feel an annual calculation will not have a significant deviation from the previous year. This creates an additional annual burden without significant impact. Entities are free to calculate ECWT more frequently if they desire.
The separation of R1 and R4 is deliberate to focus on the cold weather preparedness plan. The ECWT is just one component of this plan.

Junji Yamaguchi - Hydro-Quebec (HQ) - 5

Answer	
Document Name	

Comment

Considerations should have been given/adopted for generating units that have historically operated in temperatures below 32 degrees Fahrenheit (zero degrees Celsius).

EOP-011-02, Requirement 7.3.2 had an "or" between points 7.3.2.1, 7.3.2.2, and 7.3.2.3.
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Under the Term Section for "Fixed Fuel Supply Component" of EOP-012-02, please consider including explicit written exception for "water" as a fuel supply to the definition of fuel supply for Hydro. For Requirement R5 under EOP-012-02, suggest instead of annual training, have in place an annual WO (i.e. as the reminder) and Cold Weather Preparedness Training every 3 years. In the standard (R2 and R3), NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, for certain entities, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration. R4 of the standard requires having a preparation plan (or plans) for operation in cold weather and having specific training for each production group on cold protection measures (R5). As cold weather operations are part of our normal operations in the winter in Canada, these elements are already an integral part of our operating frameworks without necessarily being a dedicated document, but rather measures applicable to each plant are incorporated in the operator training program, for example. We reiterate that the standard represents an administrative burden for generating units are already regularly called upon during extreme cold weather, such is the case in Canada.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has added language into M1 allowing operating data or engineering analysis to be used as evidence to support a generating unit's minimum temperature. Per the NERC style rules, items listed in bullets have an implied "or" between them. Water for a hydro plant is considered outside the control of the generating unit. Therefore, it is not intended to be freeze protected.	

The SDT was required by the SAR to change the training requirement to a one-year requirement	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	
Document Name	
Comment	
PNM supports EEI comments for this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	
Document Name	
Comment	
Considerations should have been given/adopted for generating units that have historically operated in temperatures below 32 degrees Fahrenheit (zero degrees Celsius). EOP-011-02, Requirement 7.3.2 had an “or” between points 7.3.2.1, 7.3.2.2, and 7.3.2.3. When this requirement carried over into EOP-012-02 under Requirement 1.2.2, the “or” was omitted between the corresponding first two points. The “or” should be added again between the first two points.	

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Likes 0	
Dislikes 0	

Response

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The SDT was required by the SAR to change the training requirement to a one-year requirement

Kimberly Turco - Constellation - 6

Answer	
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Thank you for your comments.

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Alison MacKellar - Constellation - 5	
Answer	
Document Name	
Comment	
The existing nuclear generator weatherization programs, for both hot and cold weather, developed to comply with NRC regulations and INPO guidance, have been shown to be sufficiently robust to provide reasonable assurance of operation during severe cold weather, e.g., during winter storm Elliott. Given the effectiveness of the existing nuclear programs, and continuing nuclear industry efforts to improve, it is recommended that an exemption be included in EOP-012 for nuclear generators, similar to that in the CIP Standards. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. FERC has expressly stated that they do not want any exemptions to the cold weather standards.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	

1. The word "component" in the terms "Generator Cold Weather Critical Component," "Fixed Fuel Supply Component" and their definitions should be changed to, "equipment or systems." The water and steam systems of fossil and combined cycle plants consist of at least hundreds, more likely thousands of components (pipe, tubing, tees, elbows, valves, traps, transmitters, manifolds etc.), all protected by a single measure (heat tracing and insulation). Making GOs list them all would be crushingly burdensome, with no BES reliability value whatsoever. The same is true of instrument air systems, which again have a single freeze protection measure (the dryer). We should be allowed to simply declare for example, "Pump room – close windows before the onset of winter," instead of having to list every item in this room.

Higher granularity is needed at times, though, and EOP-012-2 should require GO/GOPs to focus on critical components, which for conventional generation plants are transmitters that can trip units. A list should be required in this respect, noting that we are once again talking about systems and not components (freezing generally occurs in the impulse lines, not the transmitters themselves). Listing every pipe run, section of tubing, valve, fitting, door, window, louver etc. in the plant however would be an inefficient use of our limited resources. The NAGF does support preparing a list of cold weather critical transmitters, so that these key items (and their manifolds) can be prioritized properly out of the innumerable components affected by cold weather. The standard as presently written detracts from BES reliability rather than augmenting it for real-world (i.e. resource-limited) situations, due to establishing a 300-way tie for priority #1.

2. R1 should be amended to clearly address first-time calculation of the ECWT, instead of beginning with criteria for recalculations. Alternatively, make R4 the new R1 (EWCT calculation), pushing the present R1 (recalculation) to the #2 spot.

3. As written, the information provided under 1.2.2 will at best create unreasonable expectations. A single point in time with a temperature and wind speed does not identify the actual capabilities of a generating unit. A unit that ran at zero degrees and 10 mph wind may easily freeze at that same temperature and wind speed if the temperatures are cold for a longer period leading up to that point. The unit may also have problems if the temperature is warmer but the wind speed is higher. By focusing on dry bulb temperature and then adding wind and precipitation, the SDT will identify a single point upon a wide curve where a unit can operate.

Even worse is concurrent precipitation. It is likely that most if not nearly all units for which the historical operation method is used will report, "X deg. F DBT, concurrent wind speed Y mph, concurrent zero precipitation." How are BAs, RCs and TOPs to make use of reported precipitation rates of zero, other than to conclude as we stated above that accretion and blockage are unrelated to freezing?

We are not adverse to providing data, but GOs being held accountable for others' misinterpretation of our reports is a concern. It appears that the SDT has not yet developed a data specification concept that gives BAs, RCs and TOPs the information they need to accurately predict resource availability for each of the extreme cold weather types:

- Exceptionally cold, little or no wind
- Very cold, high wind (all of the recent generation emergencies that have required shedding firm load have been of this type)
- High precipitation

The SDT probably should not be responsible for creating this type of data specification. However, until NERC pushes these entities to follow recommendations made for at least the last 12 years, it is likely that we will continue to have failures during cold weather events due to a lack of reasonable effort made by the real-time planning entities.

4. The R3 expression, "not capable of operating at its Extreme Cold Weather Temperature," should be clarified for GOs using the historical operation method as being consistent with R1.2.2, "at least one hour in duration." The reason is that the gradual bottoming-out of winter storms causes survival through the nadir to constitute firm proof of capability. The benchmark storm for the PJM is for example, the Polar Vortex of 2014 produced hourly dry bulb temperatures at Allentown, Pa of 7, 6, 4, 4, 2, 1, 0, 0, -1, 1, 2, 3, 4, 5 degrees F. It is obvious that the lengthy, gradual lead-in is sufficient to support a claimed capability of -1 F.

As currently written, it is unclear if an entity with the ECWT above 32 degrees can comply with Requirements R4 and R5. As written, the entity will be unable to identify any generator Cold Weather Critical Components, therefore they will be unable to identify any freeze protection measures and the annual maintenance of those measures. For training, there will be no one to train. This is caused by the very specific requirement to address GCWCC developed in R4. For a unit with an ECWT above 32 degrees, these devices do not exist. The question that needs addressed by the SDT is "Does a unit with an ECWT above 32 degrees need a plan that addresses items that are not listed as required to be included?" The NAGF notes that this issue did not exist under EOP-012-1 or EOP-011-2 due to the different language used related to freeze protection measure (no limitation for GCWCC) or the exclusion of entities that did not operate at low temperatures. While the SDT has done a commendable job to address the issues identified by FERC in the order approving EOP-012-1, the SDT needs to further modify the proposed standard to clarify how an entity with an ECWT is expect to meet the training requirement when there is nothing to be trained on.

Likes 0	
Dislikes 0	

Response	
Thank you for your comments. The SDT has updated the GCWCC definition to include systems. The definition for Generator Cold Weather Critical Component has been modified to exclude devices in climate-controlled areas that are maintained above 32 degrees F. The SDT developed the process used by the NERC May 2023 Winterization Alert and it is the recommended practice for calculating the ECWT. To address concerns about "a specified startup time" the SDT will provide clarity in the Technical Rationale. If an entity has an ECWT above 32 degrees, then it does not have any Cold Weather Critical Components. The entity is not expected to operate below its ECWT, and therefore no freeze protection methods would be applicable. This would be documented in the cold weather plan. In the original EOP-011, the training requirement applied to all units, without exception. The FERC order did not approve the timing on EOP-012 until exceptions were aligned. A cold weather plan is required of all units. The SDT expects that the number of units with an ECWT below 32 degrees will be exceptionally small.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	
Document Name	
Comment	
In calculating the Extreme Cold Weather Temperature (ECWT) at multiple facilities so far, Invenergy has, in some cases, been unable to obtain sufficient hourly temperature data coverage back to 1/1/2000, using the methodology NERC set forth in *Calculating Extreme Cold Weather Temperature* (Sept. 2022) using NOAA's climate data tool. For example, there were multiple instances of 5-years of missing hourly data for the closest, most reasonable location for a facility. Invenergy supplemented its ECWT calculations with the next nearest available temperature data, which was sometimes hundreds of miles away from the facility's location. Temperatures that are hundreds of miles away from a location can be drastically different than those at the site, thus skewing the ECWT. Invenergy recognizes that the Technical Rationale document states "If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility." However, given the frequency of unreliable or insufficient data available in the sources that	

NERC has suggested, it would be helpful to have further guidance on best practices for calculating a facility's ECWT to avoid having to utilize hourly temperatures for areas far distant from a facility, or alternative methodologies from those presented in *Calculating Extreme Cold Weather Temperature* (Sept. 2022).	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has made additional comments in the Technical Rationale.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	
Document Name	
Comment	
Ameren agrees with and supports NAGF comments on this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Joseph Gatten - Joseph Gatten On Behalf of: Nicholas Friebel, Xcel Energy, Inc., 5, 3, 1; - Joseph Gatten	
Answer	
Document Name	
Comment	
Xcel Energy supports comments offered by EEI in response to this question.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	
Document Name	
Comment	

Evergy asks the SDT to consider making some non-substantive changes to Requirement R7, subpart 7.4 in order to clarify what is required when claiming a Generator Cold Weather Constraint based on a CAP. Evergy believes that the Measures for R7 indicates specific requirements that the drafting team believed a constraint declaration should include and we are proposing to add that language to the acutal requirement so it is enforceable versus only appearing in an uneforcable measure. (Proposed changes in boldface below)

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.4 Document in a **dated** declaration, with **supporting** justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each CAP, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each CAP and the completion of actions for each CAP including revision history of each CAP. Evidence may also include work management program records, work orders, and maintenance records. **Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.**

Likes 0

Dislikes 0

Response

Thank you for your comments. The SDT does not believe this change is necessary, as dates are typically used in compliance evidence.

Natalie Johnson - Enel Green Power - 5

Answer

Document Name

Comment

Enel North America Inc. would like the SDT to also consider the impacts of a NERC Reliability Standard where there are regulatory requirements in overlapping jurisdictions. For example, the Public Utility Commission of Texas has a regulatory requirement (16 TAC 25.55) for cold weather preparations including implementing weather emergency preparations measures to reasonably ensure sustained operation of the resource at the 95th percentile minimum average 72-hour wind chill temperature as reported in the ERCOT historical weather study (16 TAC 25.55(c)(1)(B)). Regional variances should be considered by the SDT where conflicting and similar regulations exist.

Likes 0

Dislikes 0

Response

Thank you for your comments. The SDT is bound by the SAR and NERC rules for developing standards.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer

Document Name	
Comment	

AEPC signed on to ACES comments:

Extreme Cold Weather Temperature: The flexibility and intent behind using the "lowest 0.2 percentile" is greatly appreciated; however, the requirement to use a fixed start date seems a bit excessive. By using a fixed start date, the dataset will grow by 10,824 data points every 5 years when the ECWT is recalculated.

Given the inherent difficulty of compiling a dataset containing greater than 52,000 data points and then calculating the lowest 0.2 percentile, we recommend modifying the definition to remove the requirement to use a fixed data start date of 01/01/2000.

Our proposed modification to the definition would be: "The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from the previous 20 years immediately prior to the date the temperature is calculated. "

R4.1 (footnote 3): By including the stipulation that the GO shall "include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature" in a footnote, the SDT is setting the GO up for failure. If it is the intent of the SDT to require the GO to keep records of each ECWT calculation performed by the entity to ensure the lowest value is always captured, then this language should be included in a Requirement and not in the footnotes.

R5: Regarding the proposed verbiage requiring "generating unit-specific training", it is our opinion that this could be overly burdensome for stations with multiple units; particular for those stations with multiple units of a similar design (a.k.a. "sister" units). Recommend modifying this
requirement to require station-specific training in lieu of generating unit-specific training.

It is our opinion that this modification will allow the GO/GOP the flexibility to develop their training modules with an appropriate level of detail to sufficiently train station personnel without requiring them to create multiple modules with similar or identical content.

R6. Concerning the proposed timeline for the development of a CAP, it is our recommendation that the July 1st date be removed from this requirement. The rationale for this recommendations is thus: 150 days prior to July 1st is Feb 1st for non-leap years and Feb 2nd for leap years. Moreover, the July 1st timeline is further condensed if a Generator Cold Weather Reliability Event (GCWRE) occurs in March or April.

Lastly, the stated intent of the timeframe options within the Technical Rationale is to allow GOs to review multiple events holistically following a winter season. In certain areas of the country, a GCWRE could realistically occur as early as late-October. In this instance, the latest possible date for the development of a CAP would be March 30th. Given that it is also realistic for a GCWRE to occur in March, 150 days seems a reasonable number of days to cover all but the most extreme scenarios. Therefore, we recommend removing the hard deadline of July 1st. Thank you for the opportunity to comment.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. It is expected that GOs will use modern computer systems and software to calculate and update ECWT and the additional data will not be an undue burden. Regarding R5: The SDT believes the wording in the standard already allows this kind of flexibility. Regarding R6: The July 1st date is intended to provide the opportunity to complete the CAP prior to the next winter season if possible.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	
Document Name	
Comment	
In calculating the Extreme Cold Weather Temperature (ECWT) at multiple facilities so far, Invenergy has, in some cases, been unable to obtain sufficient hourly temperature data coverage back to 1/1/2000, using the methodology NERC set forth in Calculating Extreme Cold Weather Temperature (Sept. 2022) using NOAA's climate data tool. For example, there were multiple instances of 5-years of missing hourly data for the closest, most reasonable location for a facility. Invenergy supplemented its ECWT calculations with the next nearest available temperature data, which was sometimes hundreds of miles away from the facility's location. Temperatures that are hundreds of miles away from a location can be drastically different than those at the site, thus skewing the ECWT. Invenergy recognizes that the Technical Rationale document states "If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the	

methodology they use to determine their ECWT such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility." However, given the frequency of unreliable or insufficient data available in the sources that NERC has suggested, it would be helpful to have further guidance on best practices for calculating a facility's ECWT to avoid having to utilize hourly temperatures for areas far distant from a facility, or alternative methodologies from those presented in Calculating Extreme Cold Weather Temperature (Sept. 2022).

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT has made additional comments in the Technical Rationale.

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer	
Document Name	

Comment

EEI offers the following comments for consideration:

EEI has concerns with the proposed CAP criteria language in EOP-012-2. The current CAP criteria could be understood to require performance that exceeds the specifications in EOP-002-2 and should be clarified. While it is reasonable to require Generator Owners to reconsider and re-calculate their Extreme Cold Weather Temperature (ECWT) at the proposed intervals, it is not reasonable to expect that GOs can financially sustain the burdens of endless CAPs associated with Generator Cold Weather Reliability Event that exceed the defined criteria due to extended periods of sustained cooling. For example, systems designed to the specified design criteria, conforming to the defined ECWT, specified duration and associated cooling effects of the defined wind speed, may ultimately trip offline even in instances where the temperature has risen above the ECWT after the 12 hour design criteria but due to the duration of the event the system ultimately fails. This does not mean that the mitigations were faulty, the criteria was not met, or a CAP is needed. Rather, the long term conditions that the resource was subjected to exceeded the specification. Moreover, units could conceivably experience additional extreme events that could result in additional Generator Cold Weather Reliability Event before even completing the CAP for the previous event. Without addressing this issue, GOs will be faced with a situation that could result in endless CAPs, creating disincentives to building needed new generation and potentially increase early retirement of resources. To address this concern, we offer the following proposed changes to the Generator Cold Weather Reliability Event (changes in boldface):

Generator Cold Weather Reliability Event - One of the following events for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control **that conforms to the design conditions as set forth in this Standard (i.e., wind and temperature):**

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time;

or

(3) a Forced Outage.

If one or more of the these three (3) events occurs after more than 12 continuous hours of operation, demonstrating generator performance at or exceeding the design conditions as set forth in this Standard, it shall not be considered a Generator Cold Weather Reliability Event.

Generator Cold Weather Constraints: EEI understands that many of our member companies have concerns regarding how to effectively utilize the defined constraints due to the language as currently written.

EEI is concerned that Requirement R5 is not specific enough and could create potential compliance risks for entities that employ OEM contractors to support certain maintenance and/or operations activities. Given these contractors are often not dedicated contract personnel but are deployed on-demand and often represent a very large pool of personnel not under the direct control of the responsible Generator Operator, training of those contractors is often impractical. To address this concern, EEI offers the following proposed changes to Requirement R5 (changes in boldface):

Each Generator Operator or Generator Owner will have documented evidence that the applicable **Generator Operator and/or Generator Owner personnel staff and/or dedicated on-site full time contractors** completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5. **On demand contractors used for emergency services, not normally on site, are exempt from this training requirement.**

EEI asks that the SDT support the proposed changes to EOP-012-2 with Implementation Guidance. During both NERC webinars and EEI meetings with its members and the Project 2021-07 Standards Drafting Team, it was clear that many concerns, once explained, were found to be generally acceptable. For this reason, a broader sharing and expounding of SDT insights on the proposed changes may better ensure broader Industry acceptance of the proposed changes.

EEI also asks the SDT to consider making some non-substantive changes to Requirement R7, subpart 7.4 in order to clarify what is required when claiming a Generator Cold Weather Constraint based on a CAP. (Proposed changes in boldface below)

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.4 Document in a **dated** declaration, with **supporting** justification, any Generator Cold Weather Constraints that preclude the Generator Owner from implementing actions contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each CAP, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the

implementation of each CAP and the completion of actions for each CAP including revision history of each CAP. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has modified the definition of "Generator Cold Weather Reliability Event" to address the issues raised. The GO can make a Generator Cold Weather Constraint declaration, which would allow them to identify issues that cannot be addressed using good utility practice. Note the declarations are not required for extreme cold weather events below the ECWT of the generating unit. The SDT plans to hold additional webinars and outreach to aid Industry acceptance. The SDT will address the comments regarding training in the Technical Rationale. The SDT does not believe changes to R7 are necessary, as dates are typically used in compliance evidence.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	
Document Name	
Comment	
If a generating unit is located inside the powerhouse, and the powerhouse is heated in winter, will the generating unit components be considered as Generator Cold Weather Critical Components?	

For example, the unit's Extreme Cold Weather Temperature is -40 degrees Fahrenheit (-40 degrees Celsius). However, the unit is located in the powerhouse that is heated to 68 degrees Fahrenheit (20 degrees Celsius) in winter. Will the generating unit components be considered as Generator Cold Weather Critical Components? Will Requirements R2 and R3 be applicable to this unit?

Requirement R4.4 is not applicable if the unit is inside the powerhouse.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT has modified the definition of "Generator Cold Weather Component" to exclude devices in climate-controlled areas that are maintained above 32 degrees F.

Ruchi Shah - AES - AES Corporation - 5

Answer	
Document Name	

Comment

AES CE strongly recommends the drafting team to consider creating an implementation guidance or a CMEP Practice Guide to ensure consistency in approaches to meeting the new standard and requirements. Additionally, AES CE recommends that the drafting team make necessary corresponding changes for the BA to ensure that they have to perform their part in requesting the necessary data and utilizing the data to perform reliability assessments.

AES CE also would like to request that the drafting team provide clarifications (through Technical Rationale) on whether wind repowering projects that will reach COD after 10/1/2027 are considered new projects.

AES CE has concerns with the proposed CAP criteria language in EOP-012-2. The current proposed CAP process imposes a significant burden (both financially and operationally) to entities. It is not reasonable to expect that GOs can sustain the burdens of endless CAPs associated with Generator Cold Weather Reliability Event that exceed the defined criteria due to extended periods of sustained cooling. For example, systems designed to the specified design criteria, conforming to the defined ECWT, specified duration and associated cooling effects of the defined wind speed, may ultimately trip offline even in instances where the temperature has risen above the ECWT after the 12 hour design criteria but due to the duration of the event the system ultimately fails. This does not mean that the mitigations were faulty, the criteria was not met, or a CAP is needed. Rather, the long term conditions that the resource was subjected to exceeded the specification. Moreover, units could conceivably experience additional extreme events that could result in additional Generator Cold Weather Reliability Event before even completing the CAP for the previous event. Without addressing this issue, GOs will be faced with a situation that could result in endless CAPs, creating disincentives to building needed new generation and potentially increase early retirement of resources.

Additionally, AES CE is concerned that Requirement R5 is not specific enough and could create potential compliance risks for entities that employ OEM contractors to support certain maintenance and/or operations activities. Given these contractors are often not dedicated contract personnel but are deployed on-demand and often represent a very large pool of personnel not under the direct control of the responsible Generator Operator, training of those contractors is often impractical. AES CE proposes either explicitly exclude non-dedicated on-site contractors in the requirement language or provide guidance (in Implementation Guidance) that non-dedicated on-site contractors are excluded.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT welcomes industry involvement to build implementation guidance.

Regarding wind repowering projects, the SDT has no authority to make these determinations. The best course would be to discuss with your compliance authority based on your particular circumstances.

In the Technical Rationale, the SDT clarifies reasons why a GO may not be able to apply a CAP and can take advantage of a Generator Cold Weather Constraint.

The SDT will clarify in Technical Rationale the limits around the training requirement R5.

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer	
Document Name	

Comment	
Measure M3 lists only a single example of acceptable evidence and does not say that there are alternative evidence measures, just previous operating time below the ECWT.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has revised M3 to specify that other evidence is allowed.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE seeks clarity on the first provision in the definition of Generator Cold Weather Reliability Event. Does this provision refer to a total of 20 MW or greater for 4 hours? Will this be cumulative? For example, if a 50 MW unit derates by 15% of its capacity during the last hour of the 4 hours duration, will it be acceptable? Texas RE is concerned this provision could be misinterpreted to assume that as long as the capacity reduction for each of the 4 hour duration is less than 20 MW, there's no compliance issues. This could exclude all generators rated 199MW or lower. Is that the SDT's intent? Texas RE understands that Requirements R2 and R3 indicate that if an entity does not self-commit, it does not need to have freeze protection measures. Texas RE is concerned this could lead to an unintended consequence of entities choosing to not self-commit and simply awaiting a directive to deploy. This could lead to artificial capacity shortfalls driven solely by compliance considerations. Texas RE requests that the SDT clarify the language in Requirements R2 and R3 to avoid this possible result.	

Likes 0	
Dislikes 0	
Response	
Thank you for the comments. Per the definition, the derate duration must be longer than four hours to qualify. Derates of less than four-hour duration do not meet the criteria of item (1) in the definition. R2 and R3 say “self-commits or is required to operate” which includes units waiting for a directive to deploy.	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	
Document Name	
Comment	
SIGE supports Edison Electric Institute's recommendation for the Standard Drafting Team to develop Implementation Guidance.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	
Document Name	
Comment	
The SRC provides the following additional comments for the drafting team to consider.	

Revise Requirements R2, R3, and R6 to Better Align with FERC's Mandate and Provide Additional Clarity

The SRC does not read Requirements R2, R3, and R6 to satisfy FERC's mandate that the standard's applicability "exclude only those generation resources not relied upon during freezing conditions." In footnotes 1, 2, and 4 the proposed standard explicitly exempts many units that might run only during emergency conditions. By definition, those units would be "relied upon during freezing conditions," and under the language of the FERC mandate, should be required to meet the standard's requirements. **The SRC recommends removing these footnotes.** The SRC further suggests revising "self-commits or that is required to operate" in R2, R3, and R6 to read "that may be committed to operate" to avoid ambiguity about whether a unit that is available to run but that has not run since the effective date of the standard would be required to meet the requirements of R2, R3, and R6.

Clarify the Definition of Generator Cold Weather Reliability Event

The SRC is concerned that the proposed definition of Generator Cold Weather Reliability Event is ambiguous and does not capture all cold weather reliability events that should be addressed under EOP-012.

First, the SRC is concerned that the four-hour duration threshold in paragraph (1) of the proposed definition will mask a situation where a generating unit repeatedly starts and trips offline or starts and significantly ramps its output up and down within a four-hour period due to inadequate weatherization. During an extreme cold weather event, the inability of a generating unit to reliably **sustain** its output level for a long duration of time is highly detrimental to the overall stability of the BES. However, the four-hour threshold in paragraph (1) would inadvertently create an unreasonably large safe harbor for units that are unable to run consistently or maintain a consistent output due to a failure to properly weatherize. To address this issue, the SRC recommends that paragraph (1) be revised to read as follows: "a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MW, for 30 minutes or more in duration three or more times during the winter season."

Second, the phrase “specified start-up time” in paragraph (2) of the proposed definition does not provide any consistency in how the start-up time is to be applied by individual resources. To address this issue, the SRC recommends that paragraph (2) be revised to provide that a start-up failure consists of a failure to start after one or more attempts.

Confirm that Generator Cold Weather Constraint Declarations are Intended to be Used Infrequently

It is the SRC’s understanding that Generator Cold Weather Constraint declarations are intended to be a seldom-used tool rather than a commonly adopted compliance measure. The SRC recommends that this expectation be memorialized in EOP-012 if possible or in the technical rationale for EOP-012, similar to the way that the Guidelines and Technical Basis for PRC-004-6 indicate that “a declaration that no further corrective actions will be taken is expected to be used sparingly.”

Monitor the Effectiveness of the ECWT Calculation on Cold Weather Performance

As the ECWT determines the level at which freeze protection measures must be implemented, the effectiveness of EOP-012 at reducing reliability risk associated with extreme cold weather is tied to this determination. The SRC requests NERC monitor the effectiveness of the ECWT calculation by requiring GOs to report their ECWT calculations to NERC annually. Additionally, the SRC recommends that EOP-012 provide as much specificity and standardization as possible regarding how the ECWT is to be calculated and which data sources should be used for the calculations. This will help ensure consistency in how ECWTs are calculated and in the data that is used for the calculations. It will also increase the auditability of ECWT calculations.

The SRC remains concerned that the ECWT as currently defined results in a temperature that does not adequately capture extreme cold weather temperatures and other freeze-related conditions, such as wind chill and precipitation, that a generating resource will need to address in its freeze protection measures. The SRC’s proposals in its responses to questions 2 and 3 of this comment form are intended to help address this concern.

As the ECWT sets the temperature at or above which generating units must be capable of operating to avoid having to add new or modify existing freeze protection measures under EOP-012, the SRC is concerned that opportunities to improve unit reliability and weatherization effectiveness will be missed due to the clemency in temperature at which GOs will be required to perform or develop a CAP. Past extreme cold weather events have included a substantial number of hours when the dry bulb temperature was below the ECWT. The SRC simply seeks to ensure that GOs, the ERO, and equipment manufacturers are provided with the data and transparency necessary to take full advantage of the lessons that can be learned from evaluating and analyzing performance issues at temperatures below the ECWT. This information would be useful to other GOs and to FERC and the ERO as they monitor whether this standard effectively accomplishes the reliability goals set forth in the Winter Storm Uri report. Imposing the monitoring and reporting requirements recommended by the SRC will provide the information needed to evaluate the effectiveness of the ECWT and provide an indicator as to when and if any future revisions to the ECWT calculation need to be made.

Revise Requirement R1 to Require Calculation of the ECWT Annually instead of Every Five Years

In order to ensure that the information relied upon to prepare generating units for extreme cold weather remains up to date, the SRC proposes that Requirement R1 be revised to require that the ECWT be calculated at least annually rather than every five years. Once the GO has established a calculation process, it should be fairly straightforward to update the calculations every year. Requiring the GO to calculate the ECWT only once every five years dramatically extends the amount of time it will take to realize incremental reliability improvements that may result from changes in the ECWT, as it could be as long as five years plus the amount of time needed to implement the associated CAP before an incremental reliability improvement is discovered and implemented.

Clarify Ambiguities in Requirement R1

The language proposed in Requirement R1, Part 1.1.1 would require a GO to develop a CAP when an update to the ECWT indicates that a unit would not be able to comply with R2 or R3. It is unclear whether this is intended to be separate from the CAPs that R2 and R3 contemplate. The SRC recommends that Part 1.1.1 be clarified to either specify how the CAP referenced in Part 1.1.1 differs from the R2 and R3 CAPs and the effect that the Part 1.1.1 CAP has on an entity’s obligations under the standard, or to specify that Part 1.1.1 sets a deadline for the development of CAPs under R2 and R3 rather than referring to a separate CAP.

R1, Part 1.2.2 requires a GO to identify its "[g]enerating unit minimum . . . current cold weather performance temperature." The purpose of the word "current" in this phrase is unclear. The SRC suggests striking that word.

Revise Requirement R4 to Require More Frequent Inspection and Maintenance Activity

The SRC recommends that Requirement R4, Part 4.5 be revised to require inspections and maintenance to occur immediately prior to and monthly during the winter months in order to ensure that freeze protection measures are inspected at the times when they are most likely to be relied upon.

Clarify Requirement R7 and Shorten Timelines for CAP Implementation

The SRC also proposes to further clarify the language regarding CAPs in Requirement R7. As proposed, the SRC reads Part 7.1.1 to require a GO to "[s]pecify action(s) that address(es) existing equipment or freeze protection measures" and to implement those within 24 months, while Part 7.1.2 requires a GO to "[s]pecify action(s) that require(s) new equipment or freeze protection measures" and implement those within 48 months. However, because some corrective actions may address existing equipment and also require new measures, these categories are not necessarily mutually exclusive, and an ambiguity could therefore arise regarding the appropriate timeline that would apply in such a case. The SRC presumes that the CAP implementation timeline should depend on whether new equipment is required to be installed, and not on whether the CAP "addresses" existing equipment or measures. Regarding the timeline, new "measures" that don't require new equipment would not seem to require more than a year to complete, while new equipment should not require more than two years in the vast majority of cases. Therefore, the proposed 24- and 48-month timelines seem excessive.

The SRC suggests the following revised language for R7, Parts 7.1.1 and 7.1.2:

7.1.1 Specify each corrective action that does not require the installation of new equipment, which actions must be completed within 12 months of development of the Corrective Action Plan; and

7.1.2 Specify each corrective action that requires the installation of new equipment, which actions must be completed within 24 months of development of the Corrective Action Plan.

To help further ensure that CAP updates under R7, Part 7.3 are not overused, the SRC also recommends that Part 7.3 be revised to clarify that the standard of review for a CAP update is whether the update has a reasonable justification. The SRC recommends that Part 7.3 be revised to read as follows: "Update the Corrective Action Plan, with justification, if corrective action(s) reasonably change or timetable(s) reasonably require the GO to exceed the timelines in Part 7.1."

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT included the footnote to prevent entities from retiring units that cannot comply with the standard using good utility practice. As new units are constructed to meet this standard and older units retire, this footnote will become obsolete.

A unit trip is not included in item (1) of the Generator Cold Weather Reliability Event Definition. A unit trip would be considered either a start-up failure or a Forced Outage. A Forced Outage of any duration is a Generator Cold Weather Reliability Event.

The current calculation for ECWT has been approved by industry and FERC. It is clear from FERC's directives that they intend to monitor on an ongoing basis the ECWT effectiveness.

The SDT does not anticipate that most units will see a drastic change in ECWT on an annual basis, due to the calculation methodology. Therefore, an annual recalculation adds additional burden with the associated updates to plans and other required analyses without any significant benefit to reliability. Entities are welcome to recalculate the ECWT more frequently.

R2 and R3 set the expected freeze protection measures, R1 is a five-year review to the ECWT and ensure that the unit is meeting the calculated ECWT. Current refers to the temp determined at the time the engineering analysis is done.

Regarding R4, this language has already been approved by industry and FERC and was not requested to be changed in the Feb 2023 FERC order. The SDT understands the intent of this comment and believes that the desire to assure monthly inspection during the winter is already supported by the requirement to establish a CAP for a Generator Cold Weather Reliability Event

The SDT has determined to retain the 24- and 48-month time frames. However, Part 7.3 is a new requirement for staggered implementation of CAPs. Based solely on annual budgeting process the team believes it is unreasonable for a 12-month CAP to be attainable in many instances. Please see the TR for more information.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	
Document Name	

Comment

For the “Fixed Fuel Supply Component” definition, we suggest adding additional wording (see below). Nuclear Plants have diesel fuel that is not needed for or related to providing power to the generating unit. It is safety related, and not a BES component.

“Fixed Fuel Supply Component - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit ***for the purpose of generating power*** *and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner’s control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.”*

For Requrement R1:

- We suggest making the frequency every five calendar years to provide some flexibility to the GOs.

- More clarity is needed regarding the recalculation of ECWT every five years. Should each recalculation factor in data back to 1/1/2000, or just the five year period prior to the recalculation?

- Six months is not sufficient time after the recalculation to update a cold weather preparedness plan or develop a Corrective Action Plan for a nuclear plant site due to the level of reviews involved. We suggest a 12 month period.

For Requirement R3:

The revision to Requirement R3 (existing generation) has removed the time constraint. Instead of stating that the plant must be able to operate at ECWT for at least an hour, it now states that if unable to operate at ECWT a CAP must be created. It is very likely that some existing generation will not be able to continuously operate at ECWT no matter what upgrades are performed on them. Usually standards are sticter for newer sites, but if a new site must be able to operate for at least 12 hours at ECWT but an existing site has no limit, the requirement is stricter for existing units.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT believes the definition of "Fixed Fuel Supply Component" already includes the limitation requested.

The standard has been updated to specify "calendar years" per comment. The calculation will always go back to 1/1/2000. The SDT believes a six-month review period is sufficient.

While the standard indicates that you should be able to operate continuously at the ECWT, the data requirements in R1.2.2 indicate that one hour of data is the documentation that is required. There are no requirements to do CAPs under the ECWT in R6. The SDT experience is that units that operate at the ECWT for one hour can typically operate there for multiple hours due to the heat generated during operation.

Mike Magruder - Avista - Avista Corporation - 1

Answer	
Document Name	

Comment

There are too many changes to this cold weather standard too soon. The industry needs to catch up and work on the preious versions before we are ready for incorporating new requirements and obligations in our businesses.

Likes 0	
Dislikes 0	

Response

Thank you for your comments.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	
Document Name	

Comment

Extreme Cold Weather Temperature: The flexibility and intent behind using the "lowest 0.2 percentile" is greatly appreciated; however, the requirement to use a fixed start date seems a bit excessive. By using a fixed start date, the data set will grow by 10,824 data points every 5 years when the ECWT is recalculated.

Given the inherent difficulty of compiling a data set containing greater than 52,000 data points and then calculating the lowest 0.2 percentile, we recommend modifying the definition to remove the requirement to use a fixed data start date of 01/01/2000.

Our proposed modification to the definition would be: "The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from the previous 20 years immediately prior to the date the temperature is calculated. "

R4.1 (footnote 3): By including the stipulation that the GO shall "include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature" in a footnote, the SDT is setting the GO up for failure. If it is the intent of the SDT to require the GO to keep records of each ECWT calculation performed by the entity to ensure the lowest value is always captured, then this language should be included in a Requirement and not in the footnotes.

R5: Regarding the proposed verbiage requiring "generating unit-specific training", it is our opinion that this could be overly burdensome for stations with multiple units; particular for those stations with multiple units of a similar design (a.k.a. "sister" units). Recommend modifying this requirement to require station-specific training in lieu of generating unit-specific training.

It is our opinion that this modification will allow the GO/GOP the flexibility to develop their training modules with an appropriate level of detail to sufficiently train station personnel without requiring them to create multiple modules with similar or identical content.

R6. Concerning the proposed timeline for the development of a CAP, it is our recommendation that the July 1st date be removed from this requirement. The rationale for this recommendations is thus: 150 days prior to July 1st is Feb 1st for non-leap years and Feb 2nd for leap years. Moreover, the July 1st timeline is further condensed if a Generator Cold Weather Reliability Event (GCWRE) occurs in March or April. Lastly, the stated intent of the timeframe options within the Technical Rationale is to allow GOs to review multiple events holistically following a winter season. In certain areas of the country, a GCWRE could realistically occur as early as late-October. In this instance, the latest possible date for the development of a CAP would be March 30th.

Given that it is also realistic for a GCWRE to occur in March, 150 days seems a reasonable number of days to cover all but the most extreme scenarios. Therefore, we recommend removing the hard deadline of July 1st.

Thank you for the opportunity to comment.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. It is expected that GOs will use modern computer systems and software to calculate and update ECWT and the additional data will not be an undue burden.
Regarding R5: The SDT believes the wording in the standard already allows this kind of flexibility.
Regarding R6: The July 1st date is intended to provide the opportunity to complete the CAP prior to the next winter season if possible.

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	
Document Name	

Comment	
During the last presentation NERC stated that "Water" at a hydro facility is not considered fuel, however, previous presentations included water as fuel, this should be clearer as to what is considered fuel for renewable sources or exclude renewables from the clause. R3 should be expanded to provide guidance on how to demonstrate a unit is capable of operating at/below ECWT. Cold Weather Event with a number of units on economic reserve, who dictates the "start-up failure within a specified time"? And where would that be documented?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has added language into M1 allowing operating data or engineering analysis to be used as evidence to support a generating unit's minimum temperature. Per the NERC style rules, items listed in bullets have an implied "or" between them. Water for a hydro plant is considered outside the control of the generating unit. Therefore, it is not intended to be freeze protected.	
Scott McGough - Georgia System Operations Corporation - 3,4	
Answer	
Document Name	NAGF EOP-012-2 Comment Form Draft 3.docx
Comment	
Likes 0	
Dislikes 0	
Response	

REMINDER

Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Initial Ballots and Non-binding Polls Open through July 20, 2023

Now Available

Initial ballots and non-binding polls of the associated Violation Risk Factors and Violation Severity Levels for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2** are open through **8 p.m. Eastern, Thursday, July 20, 2023** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

Reminder Regarding Corporate RBB Memberships

Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact ballotadmin@nerc.net to assist with the removal of any duplicate registrations.

Balloting

Members of the ballot pools associated with this project can log in and submit their votes by accessing the Standards Balloting and Commenting System (SBS) here.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*
- *Please be mindful of ballot and comment period closing dates. We ask to **allow at least 48 hours** for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts **prior to the last day** of a comment/ballot period.*

Next Steps

The ballot results will be announced and posted on the project page. The drafting team will review all responses received during the comment period and determine the next steps of the project.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination observer list” in the Description Box.

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NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Formal Comment Period Open through July 20, 2023
Ballot Pools Forming through July 5, 2023

Now Available

A formal comment period for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2**, is open through **8 p.m. Eastern, Thursday, July 20, 2023** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

Commenting

Use the Standards Balloting and Commenting System (SBS) to submit comments. An unofficial Word version of the comment form is posted on the project page.

Reminder Regarding Corporate RBB Memberships

Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact **ballotadmin@nerc.net** to assist with the removal of any duplicate registrations.

Ballot Pools

Ballot pools are being formed through **8 p.m. Eastern, Wednesday, July 5, 2023.** Registered Ballot Body members can join the ballot pools here.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*
- *Please be mindful of ballot and comment period closing dates. We ask to **allow at least 48 hours** for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts **prior to the last day** of a comment/ballot period.*

Next Steps

Initial ballots for the standard and implementation plan, as well as non-binding polls of the associated Violation Risk Factors and Violation Severity Levels, will be conducted **July 11 – 20, 2023**.

For more information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Senior Standards Developer, Alison Oswald (via email) or at 404-446-9668. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination” in the Description Box.

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BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/285)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 IN 1 ST
Voting Start Date: 7/11/2023 12:01:00 AM
Voting End Date: 7/20/2023 8:00:00 PM
Ballot Type: ST
Ballot Activity: IN
Ballot Series: 1
Total # Votes: 273
Total Ballot Pool: 301
Quorum: 90.7
Quorum Established Date: 7/20/2023 3:11:53 PM
Weighted Segment Value: 43.47

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	79	1	25	0.391	39	0.609	0	11	4
Segment: 2	7	0.6	1	0.1	5	0.5	0	0	1
Segment: 3	67	1	24	0.444	30	0.556	0	6	7
Segment: 4	17	1	6	0.429	8	0.571	0	2	1
Segment: 5	74	1	23	0.371	39	0.629	0	5	7
Segment: 6	48	1	18	0.474	20	0.526	0	4	6
Segment: 7	1	0	0	0	0	0	0	0	1
Segment: 8	1	0	0	0	0	0	0	1	0
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.4	4	0.4	0	0	0	2	1
Totals:	301	6	101	2.608	141	3.392	0	31	28

BALLOT POOL MEMBERS

Show All entries

Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Negative	Comments Submitted
1	Allete - Minnesota Power, Inc.	Lori Frisk		Negative	Comments Submitted
1	Ameren - Ameren Services	Tamara Evey		Negative	Comments Submitted
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Negative	Comments Submitted
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Negative	Comments Submitted
1	Avista - Avista Corporation	Mike Magruder		Negative	Comments Submitted
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Negative	Comments Submitted
1	Basin Electric Power Cooperative	David Rudolph		None	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu	Patricia Robertson	Affirmative	N/A
1	Berkshire Hathaway Energy - MidAmerican Energy Co.	Terry Harbour		Negative	Comments Submitted
1	Black Hills Corporation	Micah Runner		Negative	Comments Submitted
1	Bonneville Power Administration	Kamala Rogers-Holliday		Abstain	N/A
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Abstain	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Negative	Third-Party Comments
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Negative	Third-Party Comments
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Negative	Third-Party Comments
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Negative	Third-Party Comments
1	Glencoe Light and Power Commission	Terry Volkmann		Negative	Third-Party Comments
1	Great River Energy	Gordon Pietsch		Negative	Third-Party Comments

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		Abstain	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Negative	Third-Party Comments
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		Negative	Third-Party Comments
1	Lincoln Electric System	Josh Johnson		Affirmative	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		None	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		Negative	Comments Submitted
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Negative	Third-Party Comments
1	Muscatine Power and Water	Andrew Kurriger		Negative	Third-Party Comments
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Abstain	N/A
1	Nebraska Public Power District	Jamison Cawley		Negative	Third-Party Comments
1	New York Power Authority	Salvatore Spagnolo		Negative	Third-Party Comments
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Steve Toosevich		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Negative	Third-Party Comments
1	Omaha Public Power District	Doug Peterchuck		Affirmative	N/A
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Negative	Third-Party Comments
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		Negative	Third-Party Comments
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Glen Pruitt		Affirmative	N/A
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		Negative	Comments Submitted
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Negative	Third-Party Comments
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Negative	Comments Submitted
1	Salt River Project	Sarah Blankenship	Israel Perez	Negative	Comments Submitted
1	Santee Cooper	Chris Wagner		Negative	Comments Submitted
1	SaskPower	Wayne Guttormson		Abstain	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Abstain	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Negative	Third-Party Comments
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Negative	Comments Submitted
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Affirmative	N/A
1	Taunton Municipal Lighting Plant	Devon Tremont		Affirmative	N/A
1	Tennessee Valley Authority	David Plumb		Negative	Third-Party Comments
1	Tri-State G and T Association, Inc.	Donna Wood		Negative	Comments Submitted
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	Negative	Third-Party Comments
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	California ISO	Darcy O'Connell		None	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	Comments Submitted
2	Independent Electricity System Operator	Harishkumar Subramani Vijay Kumar		Affirmative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Negative	Comments Submitted
2	Midcontinent ISO, Inc.	Bobbi Welch		Negative	Third-Party Comments
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Negative	Third-Party Comments
2	Southwest Power Pool, Inc. (RTO)	Matthew Harward		Negative	Comments Submitted
3	AEP	Kent Feliks		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Ameren - Ameren Services	David Jendras Sr		Negative	Comments Submitted
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Negative	Comments Submitted
3	Avista - Avista Corporation	Robert Follini		Negative	Comments Submitted
3	BC Hydro and Power Authority	Hootan Jarollahi		Affirmative	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Negative	Comments Submitted
3	Black Hills Corporation	Josh Combs		Negative	Comments Submitted
3	Bonneville Power Administration	Ken Lanehome		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Comments Submitted
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A
3	DTE Energy - Detroit Edison Company	Daniel Herring		Negative	Comments Submitted
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Negative	Third-Party Comments
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		None	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Negative	Third-Party Comments
3	Imperial Irrigation District	Glen Allegranza	Denise Sanchez	Affirmative	N/A
3	JEA	Marilyn Williams		Negative	Third-Party Comments
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		Negative	Third-Party Comments
3	Lincoln Electric System	Sam Christensen		Affirmative	N/A
3	Los Angeles Department of Water and Power	Tony Skourtas		Abstain	N/A
3	M and A Electric Power Cooperative	Stephen Pogue		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Manitoba Hydro	Mike Smith		Negative	Comments Submitted
3	MGE Energy - Madison Gas and Electric Co.	Ronald Bauer		Negative	Third-Party Comments
3	Muscatine Power and Water	Seth Shoemaker		Negative	Third-Party Comments
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Negative	Third-Party Comments
3	New York Power Authority	David Rivera		Negative	Third-Party Comments
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Negative	Third-Party Comments
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		Affirmative	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Negative	Third-Party Comments
3	Omaha Public Power District	David Heins		Negative	Third-Party Comments
3	Orlando Utilities Commission	Ballard Mutters		None	N/A
3	OTP - Otter Tail Power Company	Wendi Olson		Negative	Third-Party Comments
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Negative	Third-Party Comments
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		None	N/A
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Negative	Comments Submitted
3	Salt River Project	Mathew Weber	Israel Perez	Negative	Comments Submitted
3	Santee Cooper	Vicky Budreau		Negative	Comments Submitted
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Negative	Comments Submitted
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Abstain	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A
3	Snohomish County PUD No. 1	Holly Chaney		None	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Negative	Comments Submitted
3	Tennessee Valley Authority	Ian Grant		Negative	Third-Party Comments
3	Tri-State G and T Association, Inc.	Ryan Walter		Negative	Comments Submitted
3	Wabash Valley Power Association	Scott Berry		None	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel	Joseph Gatten	Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Abstain	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Negative	Comments Submitted
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Comments Submitted
4	CMS Energy - Consumers Energy Company	Aric Root		Affirmative	N/A
4	DTE Energy	Patricia Ireland		Negative	Comments Submitted
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Benjamin Winslett		Negative	Comments Submitted
4	MGE Energy - Madison Gas and Electric Co.	Adam Lee		None	N/A
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Negative	Third-Party Comments
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Negative	Third-Party Comments
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Affirmative	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Negative	Comments Submitted
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Negative	Comments Submitted
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss		Affirmative	N/A
5	AEP	Thomas Foltz		Negative	Comments Submitted
5	AES - AES Corporation	Ruchi Shah		Negative	Comments Submitted
5	Ameren - Ameren Missouri	Sam Dwyer		Negative	Comments Submitted
5	APS - Arizona Public Service Co.	Brandon Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Avista - Avista Corporation	Glen Farmer		Negative	Comments Submitted
5	Basin Electric Power Cooperative	Amanda Wangler		Negative	Third-Party Comments
5	BC Hydro and Power Authority	Helen Hamilton Harding		Affirmative	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Negative	Comments Submitted
5	Black Hills Corporation	Sheila Suurmeier		Negative	Comments Submitted
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Comments Submitted
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		Affirmative	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		None	N/A
5	Colorado Springs Utilities	Jeffrey Icke		None	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Negative	Third-Party Comments
5	Dairyland Power Cooperative	Tommy Drea		Negative	Third-Party Comments
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Adrian Raducea		Negative	Comments Submitted
5	Duke Energy	Dale Goodwine		Negative	Third-Party Comments
5	Enel Green Power	Natalie Johnson		Negative	Comments Submitted
5	Entergy - Entergy Services, Inc.	Gail Golden		Affirmative	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Robert Loy		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		None	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Negative	Third-Party Comments
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Negative	Third-Party Comments
5	Lakeland Electric	Carmen Rodriguez		Negative	Third-Party Comments
5	Lincoln Electric System	Brittany Millard		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Negative	Third-Party Comments
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation	David Melanson		Abstain	N/A
5	Nebraska Public Power District	Ronald Bender		None	N/A
5	New York Power Authority	Zahid Qayyum		Negative	Third-Party Comments
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Negative	Third-Party Comments
5	NRG - NRG Energy, Inc.	Patricia Lynch		Negative	Comments Submitted
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		Negative	Third-Party Comments
5	Oglethorpe Power Corporation	Donna Johnson		Negative	Third-Party Comments
5	Omaha Public Power District	Kayleigh Wilkerson		Negative	Third-Party Comments
5	Ontario Power Generation Inc.	Constantin Chitescu		Affirmative	N/A
5	Orlando Utilities Commission	Dania Colon		Affirmative	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Negative	Third-Party Comments
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Negative	Third-Party Comments
5	Platte River Power Authority	Jon Osell		Negative	Third-Party Comments
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Abstain	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		None	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		Affirmative	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Negative	Comments Submitted
5	Salt River Project	Thomas Johnson	Israel Perez	Negative	Comments Submitted
5	Santee Cooper	Don Cribb		Negative	Comments Submitted
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Negative	Comments Submitted
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Southern Company - Southern Company Generation	Jim Howell, Jr.		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Negative	Comments Submitted
5	Talen Generation, LLC	Donald Lock		Negative	Comments Submitted
5	Tennessee Valley Authority	Nehtisha Rollis		Negative	Third-Party Comments
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Negative	Comments Submitted
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	Vistra Energy	Daniel Roethemeyer		Negative	Comments Submitted
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Justin Kuehne		Negative	Comments Submitted
6	Ameren - Ameren Services	Robert Quinlivan		None	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman		Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Negative	Comments Submitted
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		Negative	Comments Submitted
6	Black Hills Corporation	Claudine Bates		Negative	Comments Submitted
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		None	N/A
6	Con Ed - Consolidated Edison Co. of New York	Michael Foley		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Negative	Third-Party Comments
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Negative	Comments Submitted
6	Lakeland Electric	Paul Shipps		Negative	Third-Party Comments
6	Lincoln Electric System	Eric Ruskamp		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Manitoba Hydro	Kelly Bertholet		None	N/A
6	Muscatine Power and Water	Nicholas Burns		Negative	Third-Party Comments
6	New York Power Authority	Shelly Dineen		Negative	Third-Party Comments
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet		Affirmative	N/A
6	NRG - NRG Energy, Inc.	Martin Sidor		Negative	Comments Submitted
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Negative	Third-Party Comments
6	Omaha Public Power District	Shonda McCain		Negative	Third-Party Comments
6	Platte River Power Authority	Sabrina Martz		Negative	Third-Party Comments
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Affirmative	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Joseph Neglia		Abstain	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		Affirmative	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Negative	Comments Submitted
6	Salt River Project	Timothy Singh	Israel Perez	Negative	Comments Submitted
6	Santee Cooper	Marty Watson		Negative	Comments Submitted
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Negative	Comments Submitted
6	Snohomish County PUD No. 1	John Liang		Negative	Third-Party Comments
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford		None	N/A
6	Tennessee Valley Authority	Armando Rodriguez		Negative	Third-Party Comments
6	WEC Energy Group, Inc.	David Boeshaar		Affirmative	N/A
6	Western Area Power Administration	Chrystal Dean		Negative	Third-Party Comments
6	Xcel Energy, Inc.	Steve Szablya		Affirmative	N/A
7	Oxy - Occidental Chemical	Venona Greaff		None	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
10	Midwest Reliability Organization	William Steiner		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		None	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion		Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Abstain	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Affirmative	N/A

Previous 1 Next

Showing 1 to 301 of 301 entries

BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/285)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 IN 1 OT
Voting Start Date: 7/11/2023 12:01:00 AM
Voting End Date: 7/20/2023 8:00:00 PM
Ballot Type: OT
Ballot Activity: IN
Ballot Series: 1
Total # Votes: 270
Total Ballot Pool: 297
Quorum: 90.91
Quorum Established Date: 7/20/2023 3:08:41 PM
Weighted Segment Value: 50.96

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	77	1	29	0.468	33	0.532	1	10	4
Segment: 2	6	0.6	1	0.1	5	0.5	0	0	0
Segment: 3	66	1	30	0.556	24	0.444	0	6	6
Segment: 4	16	1	7	0.467	8	0.533	0	1	0
Segment: 5	75	1	29	0.468	33	0.532	0	5	8
Segment: 6	48	1	24	0.649	13	0.351	0	4	7
Segment: 7	1	0	0	0	0	0	0	0	1
Segment: 8	1	0	0	0	0	0	0	1	0
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.3	3	0.3	0	0	0	3	1
Totals:	297	5.9	123	3.006	116	2.894	1	30	27

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Allete - Minnesota Power, Inc.	Lori Frisk		Negative	Comments Submitted
1	Ameren - Ameren Services	Tamara Evey		Negative	Comments Submitted
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Negative	Comments Submitted
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Negative	Comments Submitted
1	Avista - Avista Corporation	Mike Magruder		Negative	Comments Submitted
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Negative	Comments Submitted
1	Basin Electric Power Cooperative	David Rudolph		None	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu	Patricia Robertson	Abstain	N/A
1	Black Hills Corporation	Micah Runner		Negative	Comments Submitted
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Abstain	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Negative	Third-Party Comments
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Negative	Third-Party Comments
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Negative	Third-Party Comments
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Negative	Third-Party Comments
1	Glencoe Light and Power Commission	Terry Volkmann		Negative	Third-Party Comments
1	Great River Energy	Gordon Pietsch		Negative	Third-Party Comments
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		Abstain	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	JEA	Joseph McClung		Negative	Third-Party Comments
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		Negative	Third-Party Comments
1	Lincoln Electric System	Josh Johnson		Affirmative	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		None	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		Affirmative	N/A
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Affirmative	N/A
1	Muscatine Power and Water	Andrew Kurriger		Negative	Third-Party Comments
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Negative	No Comment Submitted
1	NB Power Corporation	Jeffrey Streifling		Abstain	N/A
1	Nebraska Public Power District	Jamison Cawley		Negative	Third-Party Comments
1	New York Power Authority	Salvatore Spagnolo		Negative	Third-Party Comments
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Steve Toosevich		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Negative	Third-Party Comments
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Affirmative	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Negative	Third-Party Comments
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		Negative	Third-Party Comments
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Affirmative	N/A
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Glen Pruitt		Affirmative	N/A
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		Negative	Comments Submitted
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Negative	Third-Party Comments

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Negative	Comments Submitted
1	Salt River Project	Sarah Blankenship	Israel Perez	Negative	Comments Submitted
1	Santee Cooper	Chris Wagner		Negative	Comments Submitted
1	SaskPower	Wayne Guttormson		Abstain	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Abstain	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Negative	Third-Party Comments
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Negative	Comments Submitted
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Affirmative	N/A
1	Taunton Municipal Lighting Plant	Devon Tremont		Affirmative	N/A
1	Tennessee Valley Authority	David Plumb		Negative	Third-Party Comments
1	Tri-State G and T Association, Inc.	Donna Wood		Affirmative	N/A
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	Negative	Third-Party Comments
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	Comments Submitted
2	Independent Electricity System Operator	Harishkumar Subramani Vijay Kumar		Affirmative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Negative	Comments Submitted
2	Midcontinent ISO, Inc.	Bobbi Welch		Negative	Third-Party Comments
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Negative	Third-Party Comments
2	Southwest Power Pool, Inc. (RTO)	Matthew Harward		Negative	Comments Submitted
3	AEP	Kent Feliks		Affirmative	N/A
3	Ameren - Ameren Services	David Jendras Sr		Negative	Comments Submitted
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Negative	Comments Submitted
3	Avista - Avista Corporation	Robert Follini		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	BC Hydro and Power Authority	Hootan Jarollahi		Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Negative	Comments Submitted
3	Black Hills Corporation	Josh Combs		Negative	Comments Submitted
3	Bonneville Power Administration	Ken Lanehome		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Comments Submitted
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Colorado Springs Utilities	Hillary Dobson		Affirmative	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A
3	DTE Energy - Detroit Edison Company	Daniel Herring		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Negative	Third-Party Comments
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		None	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Negative	Third-Party Comments
3	Imperial Irrigation District	Glen Allegranza	Denise Sanchez	Affirmative	N/A
3	JEA	Marilyn Williams		Negative	Third-Party Comments
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		Negative	Third-Party Comments
3	Lincoln Electric System	Sam Christensen		Affirmative	N/A
3	M and A Electric Power Cooperative	Stephen Pogue		Affirmative	N/A
3	Manitoba Hydro	Mike Smith		Affirmative	N/A
3	MGE Energy - Madison Gas and Electric Co.	Ronald Bauer		Negative	Third-Party Comments
3	Muscatine Power and Water	Seth Shoemaker		Negative	Third-Party Comments
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Negative	Third-Party Comments
3	New York Power Authority	David Rivera		Negative	Third-Party Comments
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Negative	Third-Party Comments
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		Affirmative	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Affirmative	N/A
3	OTP - Otter Tail Power Company	Wendi Olson		Negative	Third-Party Comments
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Negative	Third-Party Comments
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		None	N/A
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Negative	Comments Submitted
3	Salt River Project	Mathew Weber	Israel Perez	Negative	Comments Submitted
3	Santee Cooper	Vicky Budreau		Negative	Comments Submitted
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Negative	Comments Submitted
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Abstain	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A
3	Snohomish County PUD No. 1	Holly Chaney		None	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Negative	Comments Submitted
3	Tennessee Valley Authority	Ian Grant		Negative	Third-Party Comments
3	Tri-State G and T Association, Inc.	Ryan Walter		Affirmative	N/A
3	Wabash Valley Power Association	Scott Berry		None	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel	Joseph Gatten	Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Negative	Third-Party Comments
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Comments Submitted
4	CMS Energy - Consumers Energy Company	Aric Root		Affirmative	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Benjamin Winslett		Negative	Comments Submitted
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Negative	Third-Party Comments
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Negative	Third-Party Comments
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Affirmative	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Negative	Comments Submitted
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Negative	Comments Submitted
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss		Affirmative	N/A
5	AEP	Thomas Foltz		Affirmative	N/A
5	AES - AES Corporation	Ruchi Shah		Negative	Comments Submitted
5	Ameren - Ameren Missouri	Sam Dwyer		Negative	Comments Submitted
5	APS - Arizona Public Service Co.	Brandon Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Negative	Comments Submitted
5	Avista - Avista Corporation	Glen Farmer		Negative	Comments Submitted
5	Basin Electric Power Cooperative	Amanda Wangler		Negative	Third-Party Comments
5	BC Hydro and Power Authority	Helen Hamilton Harding		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Affirmative	N/A
5	Black Hills Corporation	Sheila Suurmeier		Negative	Comments Submitted
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Comments Submitted
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		Affirmative	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		None	N/A
5	Colorado Springs Utilities	Jeffrey Icke		None	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Negative	Third-Party Comments
5	Dairyland Power Cooperative	Tommy Drea		Negative	Third-Party Comments
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Adrian Raducea		Affirmative	N/A
5	Duke Energy	Dale Goodwine		Negative	Third-Party Comments
5	Enel Green Power	Natalie Johnson		Negative	Comments Submitted
5	Entergy - Entergy Services, Inc.	Gail Golden		Affirmative	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Robert Loy		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		None	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Negative	Third-Party Comments
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Negative	Third-Party Comments
5	Lakeland Electric	Carmen Rodriguez		Negative	Third-Party Comments
5	Lincoln Electric System	Brittany Millard		Affirmative	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Negative	Third-Party Comments
5	Muscatine Power and Water	Neal Nelson		Negative	Third-Party Comments
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation	David Melanson		Abstain	N/A
5	Nebraska Public Power District	Ronald Bender		None	N/A
5	New York Power Authority	Zahid Qayyum		None	N/A
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Negative	Third-Party Comments
5	NRG - NRG Energy, Inc.	Patricia Lynch		Negative	Comments Submitted
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Oglethorpe Power Corporation	Donna Johnson		Negative	Third-Party Comments
5	Omaha Public Power District	Kayleigh Wilkerson		Affirmative	N/A
5	Ontario Power Generation Inc.	Constantin Chitescu		Affirmative	N/A
5	Orlando Utilities Commission	Dania Colon		Affirmative	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Negative	Third-Party Comments
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Negative	Third-Party Comments
5	Platte River Power Authority	Jon Osell		Negative	Third-Party Comments
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Affirmative	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		None	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		Affirmative	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Negative	Comments Submitted
5	Salt River Project	Thomas Johnson	Israel Perez	Negative	Comments Submitted
5	Santee Cooper	Don Cribb		Negative	Comments Submitted
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Negative	Comments Submitted
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Abstain	N/A
5	Southern Company - Southern Company Generation	Jim Howell, Jr.		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Negative	Comments Submitted
5	Talen Generation, LLC	Donald Lock		Negative	Comments Submitted
5	Tennessee Valley Authority	Nehtisha Rollis		Negative	Third-Party Comments
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Affirmative	N/A
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	Vistra Energy	Daniel Roethemeyer		Negative	Comments Submitted
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Justin Kuehne		Affirmative	N/A
6	Ameren - Ameren Services	Robert Quinlivan		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	APS - Arizona Public Service Co.	Marcus Bortman		Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Negative	Comments Submitted
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		Affirmative	N/A
6	Black Hills Corporation	Claudine Bates		Negative	Comments Submitted
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		None	N/A
6	Con Ed - Consolidated Edison Co. of New York	Michael Foley		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Negative	Third-Party Comments
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	Third-Party Comments
6	Lincoln Electric System	Eric Ruskamp		Affirmative	N/A
6	Manitoba Hydro	Kelly Bertholet		None	N/A
6	Muscatine Power and Water	Nicholas Burns		Negative	Third-Party Comments
6	New York Power Authority	Shelly Dineen		Negative	Third-Party Comments
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet		Affirmative	N/A
6	NRG - NRG Energy, Inc.	Martin Sidor		Affirmative	N/A
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Affirmative	N/A
6	Platte River Power Authority	Sabrina Martz		Negative	Third-Party Comments
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Joseph Neglia		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		Affirmative	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Negative	Comments Submitted
6	Salt River Project	Timothy Singh	Israel Perez	Negative	Comments Submitted
6	Santee Cooper	Marty Watson		Negative	Comments Submitted
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Negative	Comments Submitted
6	Snohomish County PUD No. 1	John Liang		Negative	Third-Party Comments
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford		None	N/A
6	Tennessee Valley Authority	Armando Rodriguez		Negative	Third-Party Comments
6	WEC Energy Group, Inc.	David Boeshaar		Affirmative	N/A
6	Western Area Power Administration	Jennifer Neville		None	N/A
6	Xcel Energy, Inc.	Steve Szablya		Affirmative	N/A
7	Oxy - Occidental Chemical	Venona Greaff		None	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	William Steiner		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		None	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion		Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Abstain	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Abstain	N/A

Previous 1 Next

Showing 1 to 297 of 297 entries

BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/285)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll IN 1 NB
Voting Start Date: 7/11/2023 12:01:00 AM
Voting End Date: 7/20/2023 8:00:00 PM
Ballot Type: NB
Ballot Activity: IN
Ballot Series: 1
Total # Votes: 252
Total Ballot Pool: 283
Quorum: 89.05
Quorum Established Date: 7/20/2023 3:22:13 PM
Weighted Segment Value: 43.59

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes	Negative Fraction	Abstain	No Vote
Segment: 1	73	1	20	0.385	32	0.615	16	5
Segment: 2	6	0.5	1	0.1	4	0.4	1	0
Segment: 3	64	1	22	0.5	22	0.5	12	8
Segment: 4	15	1	6	0.429	8	0.571	1	0
Segment: 5	72	1	20	0.392	31	0.608	12	9
Segment: 6	44	1	13	0.5	13	0.5	11	7
Segment: 7	1	0	0	0	0	0	0	1
Segment: 8	1	0	0	0	0	0	1	0
Segment: 9	0	0	0	0	0	0	0	0
Segment: 10	7	0.3	3	0.3	0	0	3	1
Totals:	283	5.8	85	2.605	110	3.195	57	31

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Abstain	N/A
1	Allete - Minnesota Power, Inc.	Lori Frisk		Negative	Comments Submitted
1	Ameren - Ameren Services	Tamara Evey		Abstain	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Negative	Comments Submitted
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Negative	Comments Submitted
1	Avista - Avista Corporation	Mike Magruder		Negative	Comments Submitted
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Negative	Comments Submitted
1	Basin Electric Power Cooperative	David Rudolph		None	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu	Patricia Robertson	Abstain	N/A
1	Black Hills Corporation	Micah Runner		Negative	Comments Submitted
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Abstain	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Negative	Comments Submitted
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Negative	Comments Submitted
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Negative	Comments Submitted
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Negative	Comments Submitted
1	Glencoe Light and Power Commission	Terry Volkmann		Negative	Comments Submitted
1	Great River Energy	Gordon Pietsch		Negative	Comments Submitted
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		Abstain	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Negative	Comments Submitted
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		Negative	Comments Submitted
1	Lincoln Electric System	Josh Johnson		Abstain	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Los Angeles Department of Water and Power	faranak sarbaz		None	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Negative	Comments Submitted
1	Muscatine Power and Water	Andrew Kurriger		Negative	Comments Submitted
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Abstain	N/A
1	Nebraska Public Power District	Jamison Cawley		Negative	Comments Submitted
1	New York Power Authority	Salvatore Spagnolo		Negative	Comments Submitted
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Steve Toosevich		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Negative	Comments Submitted
1	Omaha Public Power District	Doug Peterchuck		Negative	Comments Submitted
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		Negative	Comments Submitted
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Negative	Comments Submitted
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		None	N/A
1	Public Utility District No. 1 of Chelan County	Glen Pruitt		Affirmative	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Negative	Comments Submitted
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Negative	Comments Submitted
1	Salt River Project	Sarah Blankenship	Israel Perez	Negative	Comments Submitted
1	Santee Cooper	Chris Wagner		Abstain	N/A
1	SaskPower	Wayne Guttormson		Abstain	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Abstain	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Negative	Comments Submitted
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Affirmative	N/A
1	Taunton Municipal Lighting Plant	Devon Tremont		Affirmative	N/A
1	Tennessee Valley Authority	David Plumb		Abstain	N/A
1	Tri-State G and T Association, Inc.	Donna Wood		Negative	Comments Submitted
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	Negative	Comments Submitted
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	Comments Submitted
2	Independent Electricity System Operator	Harishkumar Subramani Vijay Kumar		Affirmative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Negative	Comments Submitted
2	Midcontinent ISO, Inc.	Bobbi Welch		Negative	Comments Submitted
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Abstain	N/A
2	Southwest Power Pool, Inc. (RTO)	Matthew Harward		Negative	Comments Submitted
3	AEP	Kent Feliks		Abstain	N/A
3	Ameren - Ameren Services	David Jendras Sr		Abstain	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Negative	Comments Submitted
3	Avista - Avista Corporation	Robert Follini		Negative	Comments Submitted
3	BC Hydro and Power Authority	Hootan Jarollahi		Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Negative	Comments Submitted
3	Black Hills Corporation	Josh Combs		Negative	Comments Submitted
3	Bonneville Power Administration	Ken Lanehome		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Comments Submitted
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Colorado Springs Utilities	Hillary Dobson		Affirmative	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	DTE Energy - Detroit Edison Company	Daniel Herring		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Negative	Comments Submitted
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		None	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Negative	Comments Submitted
3	Imperial Irrigation District	Glen Allegranza	Denise Sanchez	Affirmative	N/A
3	JEA	Marilyn Williams		Negative	Comments Submitted
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		Negative	Comments Submitted
3	Lincoln Electric System	Sam Christensen		Abstain	N/A
3	M and A Electric Power Cooperative	Stephen Pogue		Affirmative	N/A
3	MGE Energy - Madison Gas and Electric Co.	Ronald Bauer		Negative	Comments Submitted
3	Muscatine Power and Water	Seth Shoemaker		Negative	Comments Submitted
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Negative	Comments Submitted
3	New York Power Authority	David Rivera		Negative	Comments Submitted
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Negative	Comments Submitted
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		Affirmative	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Negative	Comments Submitted
3	Omaha Public Power District	David Heins		Negative	Comments Submitted
3	Orlando Utilities Commission	Ballard Mutters		None	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Negative	Third-Party Comments

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		None	N/A
3	PPL - Louisville Gas and Electric Co.	James Frank		None	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Negative	Comments Submitted
3	Salt River Project	Mathew Weber	Israel Perez	Negative	Comments Submitted
3	Santee Cooper	Vicky Budreau		Abstain	N/A
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Abstain	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Abstain	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A
3	Snohomish County PUD No. 1	Holly Chaney		None	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Negative	Comments Submitted
3	Tennessee Valley Authority	Ian Grant		Abstain	N/A
3	Tri-State G and T Association, Inc.	Ryan Walter		Negative	Comments Submitted
3	Wabash Valley Power Association	Scott Berry		None	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Negative	Comments Submitted
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Negative	Comments Submitted
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Comments Submitted
4	CMS Energy - Consumers Energy Company	Aric Root		Affirmative	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Benjamin Winslett		Negative	Comments Submitted
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Negative	Comments Submitted
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Negative	Comments Submitted
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Affirmative	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Negative	Comments Submitted
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Negative	Comments Submitted
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	WEC Energy Group, Inc.	Matthew Beilfuss		Affirmative	N/A
5	AEP	Thomas Foltz		Abstain	N/A
5	AES - AES Corporation	Ruchi Shah		Negative	Comments Submitted
5	Ameren - Ameren Missouri	Sam Dwyer		Abstain	N/A
5	APS - Arizona Public Service Co.	Brandon Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Negative	Comments Submitted
5	Avista - Avista Corporation	Glen Farmer		Negative	Comments Submitted
5	BC Hydro and Power Authority	Helen Hamilton Harding		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Negative	Comments Submitted
5	Black Hills Corporation	Sheila Suurmeier		Negative	Comments Submitted
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Comments Submitted
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		Affirmative	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		None	N/A
5	Colorado Springs Utilities	Jeffrey Icke		None	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Negative	Comments Submitted
5	Dairyland Power Cooperative	Tommy Drea		Negative	Comments Submitted
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Adrian Raducea		Affirmative	N/A
5	Duke Energy	Dale Goodwine		Negative	Comments Submitted
5	Enel Green Power	Natalie Johnson		Negative	Comments Submitted
5	Entergy - Entergy Services, Inc.	Gail Golden		Affirmative	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Robert Loy		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		None	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Negative	Comments Submitted
5	Lakeland Electric	Carmen Rodriguez		Negative	Comments Submitted
5	Lincoln Electric System	Brittany Millard		Abstain	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Negative	Comments Submitted
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation	David Melanson		Abstain	N/A
5	Nebraska Public Power District	Ronald Bender		None	N/A
5	New York Power Authority	Zahid Qayyum		Negative	Comments Submitted
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Negative	Comments Submitted
5	NRG - NRG Energy, Inc.	Patricia Lynch		Negative	Comments Submitted
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		Negative	Comments Submitted
5	Oglethorpe Power Corporation	Donna Johnson		Negative	Comments Submitted
5	Omaha Public Power District	Kayleigh Wilkerson		Negative	Comments Submitted
5	Ontario Power Generation Inc.	Constantin Chitescu		Affirmative	N/A
5	Orlando Utilities Commission	Dania Colon		Affirmative	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Negative	Comments Submitted
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Negative	Comments Submitted
5	Platte River Power Authority	Jon Osell		Negative	Comments Submitted
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		None	N/A
5	PSEG Nuclear LLC	Tim Kucey		Abstain	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		None	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Negative	Comments Submitted
5	Salt River Project	Thomas Johnson	Israel Perez	Negative	Comments Submitted
5	Santee Cooper	Don Cribb		Abstain	N/A
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Abstain	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Abstain	N/A
5	Southern Company - Southern Company Generation	Jim Howell, Jr.		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Negative	Comments Submitted
5	Talen Generation, LLC	Donald Lock		Negative	Comments Submitted
5	Tennessee Valley Authority	Nehtisha Rollis		Abstain	N/A
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Negative	Comments Submitted
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		None	N/A
6	AEP	Justin Kuehne		Abstain	N/A
6	Ameren - Ameren Services	Robert Quinlivan		None	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman		Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Negative	Comments Submitted
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		Negative	Comments Submitted
6	Black Hills Corporation	Claudine Bates		Negative	Comments Submitted
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Con Ed - Consolidated Edison Co. of New York	Michael Foley		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Negative	Comments Submitted
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Lincoln Electric System	Eric Ruskamp		Abstain	N/A
6	New York Power Authority	Shelly Dineen		Negative	Comments Submitted
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet		Abstain	N/A
6	NRG - NRG Energy, Inc.	Martin Sidor		Negative	Comments Submitted
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Negative	Comments Submitted
6	Omaha Public Power District	Shonda McCain		Negative	Comments Submitted
6	Platte River Power Authority	Sabrina Martz		Negative	Comments Submitted
6	Portland General Electric Co.	Daniel Mason		Abstain	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		None	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Joseph Neglia		Abstain	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		Affirmative	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Negative	Comments Submitted
6	Salt River Project	Timothy Singh	Israel Perez	Negative	Comments Submitted
6	Santee Cooper	Marty Watson		Abstain	N/A
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Abstain	N/A
6	Snohomish County PUD No. 1	John Liang		Negative	Comments Submitted
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford		None	N/A
6	Tennessee Valley Authority	Armando Rodriguez		None	N/A
6	WEC Energy Group, Inc.	David Boeshaar		Affirmative	N/A
6	Western Area Power Administration	Jennifer Neville		None	N/A
6	Xcel Energy, Inc.	Steve Szablya		None	N/A
7	Oxy - Occidental Chemical	Venona Greaff		None	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	William Steiner		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		None	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
10	ReliabilityFirst	Lindsey Mannion		Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Abstain	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Abstain	N/A

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Agenda Item 8
Standards Committee
August 23, 2023

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Action

- Approve the following waiver of provisions of the Standard Processes Manual (SPM) for Project 2021-07:
  - Additional formal comment and ballot period (s) reduced from 45 days to as little as 25 days, with ballot conducted during the last 10 days of the comment period. (Sections 4.9 and 4.12)
  - Final ballot reduced from 10 days to five calendar days. (Section 4.9)

Background

As stated in the SAR, the primary purpose of this project is intended to address reliability related findings from FERC, NERC, and Regional Entity Joint Staff Inquiry into the February 2021 Cold Weather Grid Operations (joint inquiry). From February 8 - 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates, or failures to start, resulting in energy and transmission emergencies (referred to as "the Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 northeast blackout and the August 1996 west coast blackout. The Event was most severe from February 15 - February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years that jeopardized bulk-power system reliability.

At its November 2021 meeting, the NERC Board of Trustees (Board) approved the following resolution regarding Project 2021-07:

> **FURTHER RESOLVED**, that the Board hereby directs that the development of new or revised Reliability Standards to address the recommendations of the joint inquiry team for cold weather operations, preparedness, and coordination to be completed in accordance with the timelines recommended by the joint inquiry team, as follows:
>
> - New and revised Reliability Standards to be submitted for regulatory approval before Winter 2022/2023: development completed by September 30, 2022, for the Board's consideration in October 2022;
> - New and revised Reliability Standards to be submitted for regulatory approval before Winter 2023/2024: development completed by September 30, 2023, for the Board's consideration in October 2023.

Work under Project 2021-07 has since proceeded in two phases, consistent with the Board's resolution. The first phase of work completed in the fall of 2022 and resulted in Reliability Standards EOP-011-3 and EOP-012-1. The second phase of work, which is underway, is developing Reliability Standards EOP-011-4 and TOP-002-5.

On February 16, 2023, shortly before the first ballot on the phase two standards, FERC issued an order approving Reliability Standards EOP-011-3 and EOP-012-2 while directing five areas for additional revisions. FERC directed NERC to submit a revised EOP-012 standard by February 2024.[1]

In summary, there are two sets of deadlines governing Project 2017-07: the Board's September 30, 2023 deadline for the completion of EOP-011-4 and TOP-002-5, and FERC's February 2024 deadline for completion of EOP-012-2.

NERC Standard Processes Manual Section 16.0 Waiver provides as follows:

> The Standards Committee may waive any of the provisions contained in this manual for good cause shown, but limited to the following circumstances:
>
> - In response to a national emergency declared by the United States or Canadian government that involves the reliability of the Bulk Electric System or cyber attack on the Bulk Electric System;
> - Where necessary to meet regulatory deadlines;
> - Where necessary to meet deadlines imposed by the NERC Board of Trustees; or
> - Where the Standards Committee determines that a modification to a proposed Reliability Standard or its Requirement(s), a modification to a defined term, a modification to an Interpretation, or a modification to a Variance has already been vetted by the industry through the standards development process or is so insubstantial that developing the modification through the processes contained in this manual will add significant time delay.

Summary

Due to the issuance of FERC's February 16, 2023 Order directing further revisions to EOP-012 by February 2024, the Project 2021-07 drafting team was delayed in the planned development timeline for the standards addressing the phase 2 recommendations of the February 2021 joint inquiry report. The Project 2021-07 SDT leadership and NERC staff request that the SC consider a waiver of certain provisions of the SPM regarding the length of comment periods and ballots in order to meet the September 30, 2023 development deadline for EOP-011-4 and TOP-002-5 set by the Board.

The Project 2021-07 SDT leadership and NERC staff also request that the SC consider a waiver of these same provisions for EOP-012-2, in the event shortened comment and ballot periods are needed to develop a consensus standard by the February 2024 FERC deadline.

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[1] *Order Approving Extreme Cold Weather Reliability Standards EOP-011-3 and EOP-012-2 and Directing Modification of Reliability Standard EOP-012-1,* 182 FERC ¶ 61,094 (Feb. 16, 2023), available here.

The requesters ask to shorten the additional formal comment and ballot period(s) for Project 2021-07 from 45 days to as few as 25 days, with a ballot and non-binding poll during the last 10 days of the 25 day period. In addition, the requesters ask to shorten the final ballot from 10 days to five days.

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Minutes
Standards Committee Meeting

A. Casuscelli, chair, called to order the meeting of the Standards Committee (SC) on August 23, 2023, at 1:02 p.m. Eastern. A. Oswald called roll and determined the meeting had a quorum. The SC member attendance and proxy sheets are attached as Attachment 1.

NERC Antitrust Compliance Guidelines and Public Announcement
The SC secretary called attention to the NERC Antitrust Compliance Guidelines and the public meeting notice and directed questions to NERC's General Counsel, Sonia C. Rocha.

Introduction and Chair's Remarks
A. Casuscelli welcomed the SC, guests, and proxies to the meeting.

Review August 23, 2023 Agenda (agenda item 1)
The SC approved the August 23, 2023 meeting agenda.

Consent Agenda (agenda item 2)
The SC approved the July 19, 2023 SC Meeting Minutes. The SC was informed about Project 2023-04 Modifications to CIP-003 SC Action without a Meeting.

Projects Under Development (agenda item 3)
C. Yeung reviewed the Project Tracking Spreadsheet. L. Harkness reviewed the Project Posting Schedule.

Project Management Posting Coordination (agenda item 4)
M. Brytowski provided an overview of the Project Management Oversight Subcommittee (PMOS) posting coordination. C. Yeung provided insight into how liaisons could work with developers and drafting team (DT) leadership to coordinate schedules. S. Kim shared that Standard Development is looking to host a webinar that details the prioritization of projects and the risk registry update. Discussion will continue to the next SC meeting.

Legal Update and Upcoming Standards Filings (agenda item 9)
L. Perotti provided an update.

Errata to Reliability Standard TOP-003-6 (agenda item 6)
L. Harkness provided an overview of the errata changes. V. O'Leary motioned to accept the errata changes to TOP-003-6 to remove the word "using" from Requirement R5 and correct the grammar of the word "methods" in Requirement R2 Part 2.5.5.

The SC approved the motion with no objections or abstentions.

Project 2023-03 Internal Network Security Monitoring (agenda item 5)
J. Calderon provided an overview of the project background and standard authorization request (SAR). S. Rueckert made a motion to accept the revised Project 2023-03 Internal Network Security Monitoring Standard Authorization Request (SAR), authorize drafting of Reliability Standard(s) identified in the SAR, and approve a waiver of provisions of the Standard Processes Manual for Project 2023-03 Internal Network Security Monitoring (INSM) due to regulatory deadlines, as follows:

- Initial formal comment and ballot period reduced from 45 days to as few as 30 calendar days, with ballot pools formed in the first 20 days and initial ballot and non-binding poll of Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs) conducted during the last five days of the comment period (Sections 4.9, 4.10);
- Additional formal comment and ballot period(s) reduced from 45 days to as few as 20 calendar days, with ballot(s) and non-binding poll(s) conducted during the last five days of the comment period (Sections 4.9, 4.10).
- Final ballot reduced from 10 days to as few as five calendar days (Section 4.13)

The SC approved the motion with no objections or abstentions.

Project 2021-08 Modifications to FAC-008 (agenda item 7)
J. Calderon provided an overview of the project background. V. O'Leary asked if the additional requirement nine aligned with the SAR's scope. B. Wu shared that requirement nine complements requirement 6, which requirement 9 focuses on maintaining data to keep requirement six enforceable. V. O'Leary made a motion to authorize initial posting of the proposed Reliability Standard FAC-008-6 and the associated Implementation Plan for a 45-day formal comment period, with ballot pools formed in the first 30 days and parallel initial ballots and non-binding polls on the VRFs and VSLs, conducted during the last 10 days of the comment period.

The SC approved the motion with no objections or abstentions.

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination (agenda item 8)
L. Harkness provided an overview of the project's background. S. Rueckert inquired when the SDT would have to respond to comments from the last formal comment period. A. Oswald mentioned that the SDT would have enough time to respond to comments. S. Rueckert made a motion to approve the following waiver of provisions of the Standard Processes Manual (SPM) for Project 2021-07:

- Additional formal comment and ballot period (s) reduced from 45 days to as little as 20 days, with the ballot conducted during the last 10 days of the comment period. (Sections 4.9 and 4.12)
- Final ballot reduced from 10 days to five calendar days. (Section 4.9)

The SC approved the motion with no abstentions. William Chambliss, Kent Feliks, and Terri Pyle opposed.

R. Blohm asked about the classifications of NERC membership sectors and, specifically, inquired about the ”associate” category and how it is defined. L. Perotti explained how the NERC membership sectors differ from the registered body segments and provided a brief overview.

Adjournment

The meeting adjourned at 2:29 p.m. Eastern.

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Standards Committee
2023 Segment Representatives

Segment and Terms	Representative	Organization	Proxy	Present (Member or Proxy)
Chair 2022-23	Amy Casuscelli* Manager, Reliability Assurance & Risk Management	Xcel Energy		X
Vice Chair 2022-23	Todd Bennett* Managing Director, Reliability Compliance & Audit Services	Associated Electric Cooperative, Inc.		X
Segment 1-2022-23	Michael Jones Manager, Reliability Standards & Policy	National Grid		X
Segment 1-2021-22	Troy Brumfield* Regulatory Compliance Manager	American Transmission Company		X
Segment 2-2022-23	Jamie Johnson Infrastructure Compliance Manager	California ISO		N
Segment 2-2021-22	Charles Yeung Executive Director Interregional Affairs	Southwest Power Pool		X
Segment 3-2022-23	Kent Feliks Manager NERC Reliability Assurance – Strategic Initiatives	American Electric Power Company, Inc.		X
Segment 3-2021-22	Vicki O' Leary Director – Reliability, Compliance, and Implementation	Eversource Energy		X
Segment 4-2022-23	Marty Hostler Reliability Compliance Manager	Northern California Power Agency		X
Segment 4-2021-22	Patti Metro Senior Grid Operations & Reliability Director	National Rural Electric Cooperative Associate	Alice Wright	X
Segment 5-2022-23	Terri Pyle Utility Operational Compliance and NERC Compliance Office	Oklahoma Gas and Electric		X
Segment 5-2021-22	Jim Howell Markets Compliance Manager	Southern Company Generation		X

Segment and Terms	Representative	Organization	Proxy	Present (Member or Proxy)
Segment 6-2022-23	Sarah Snow* Manager of Reliability Compliance	Cooperative Energy		X
Segment 6-2021-22	Justin Welty Senior Manager, NERC Reliability Standards	NextEra Energy		X
Segment 7-2022-23	Kristine Martz Industry Specialist, Power & Utilities	Amazon Web Services		X
Segment 7-2021-22	Venona Greaff* Senior Energy Analyst	Occidental Chemical Corporation		X
Segment 8-2022-23	Robert Blohm[1] Managing Director	Keen Resources Ltd.		X
Segment 8-2021-22	Philip Winston Retired (Southern Company)	Independent		X
Segment 9-2022-23	Sarosh Muncherji[1] Cyber Security Specialist	British Columbia Utilities Commission		X
Segment 9-2021-22	William Chambliss General Counsel	Virginia State Corporation Commission		X
Segment 10-2022-23	Tony Purgar Senior Manager, Operational Analysis & Awareness	ReliabilityFirst		X
Segment 10-2021-22	Steven Rueckert Director of Standards	WECC		X

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[1] Serving as Canadian Representative
*Denotes SC Executive Committee Member

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the second draft of the proposed standard for a formal 35-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal or informal comment period with additional ballot	October – November 2023

Anticipated Actions	Date
10-day final ballot	January 2024
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component – Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event – One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner, using good utility practice,[1] from implementing freeze protection measures on one or more Generator Cold Weather Critical Components.

Previously Approved Terms

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[1] The phrase "good utility practice" is being used in its common understanding. More information on this can be found in the Technical Rationale. This footnote is for information purposes only in the posting and will not be included in the term included in the NERC Glossary of Terms.

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. Functional Entities:

   - **4.1.1.** Generator Owner
   - **4.1.2.** Generator Operator

   4.2. Facilities:

   - **4.2.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following Bulk Electric System (BES) resources:
     - **4.2.1.1.** A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or
     - **4.2.1.2.** A Blackstart Resource, identified in the BES definition, inclusion I3.

5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Fuel switching capabilities; and

1.2.1.4. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or
- Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[3] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

4.1. The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[4]

4.2. The generating unit cold weather data, as determined in Requirement R1.2;

4.3. Documentation identifying Generator Cold Weather Critical Components;

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[3] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[4] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner’s work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner’s cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

6.2. A review of applicability to similar equipment at generating units owned by the Generator Owner; and

6.3. An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the Corrective Action Plan.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.

7.2. Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

7.3. Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each Corrective Action Plan and the completion of actions for each Corrective Action Plan including revision history of each Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review and updated operating limitations as needed. Acceptable evidence may include but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1 and Measure M1.

- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for

	5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.
R4.	The Generator Owner implemented a cold weather preparedness plan(s) but failed to maintain it.	The Generator Owner’s cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s) but failed to implement it. OR The Generator Owner’s cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have cold weather preparedness plan(s). OR The Generator Owner’s cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or

	• 5% or less of its total applicable personnel.	• more than 5%, but less than or equal to 10% of its total applicable personnel.	• more than 10%, but less than or equal to 15% of its total applicable personnel.	• more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a Corrective Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the second draft of the proposed standard for a formal 35-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal or informal comment period with additional ballot	October – November 2023

Anticipated Actions	Date
10-day final ballot	January 2024
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component -– Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component -– Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event -– One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1)- a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MWs for longer than four hours in duration;

(2)- a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3)- a Forced Outage.

Generator Cold Weather Constraint~~(s)~~ ~~– A limitation~~ – Any condition that would ~~prohibit~~preclude a Generator Owner, using good utility practice,[1] from implementing freeze protection measures on one or more Generator Cold Weather Critical Components. ~~A constraint must fall under one of the following areas:~~

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[1] The phrase "good utility practice" is being used in its common understanding. More information on this can be found in the Technical Rationale. This footnote is for information purposes only in the posting and will not be included in the term included in the NERC Glossary of Terms.

- ~~Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.~~
- ~~Commercial Constraint - A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation.~~

~~Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.~~

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2~~, but is not being balloted at this time.~~.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. Functional Entities:

   4.1.1. Generator Owner

   4.1.2. Generator Operator

   4.2. Facilities:

   4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following Bulk Electric System (BES) resources:

   4.2.1.1. A ~~BES~~Bulk Electric System generating resource identified in the BES definition, ~~Inclusion~~inclusion I2 and I4; or

   4.2.1.2. A Blackstart Resource, identified in the BES definition, ~~Inclusion~~inclusion I3.

5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable ~~generating~~ unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement ~~R2 or~~ R3, the entity shall develop a Corrective Action Plan within ~~six~~6 months of the recalculation~~; and~~.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1~~—~~. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1~~-~~. Capability and availability;

~~**1.2.**~~**1.2**~~–~~.1.2. Fuel supply and inventory concerns;

1.2.1.3~~–~~. Fuel switching capabilities; and

1.2.1.4~~–~~. Environmental constraints.

~~–~~**1**~~.2~~**.2**~~–~~.2. Generating unit(s) minimum:

- Design temperature and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. ~~—~~ Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis~~, operating data or design information~~ that ~~support~~supports its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

~~•~~ ~~Have~~Implement freeze protection measures to protect Generator Cold Weather Critical
~~—~~Components that provide the capability to operate~~:~~

~~**2.1.1** At~~ at the unit(s)' Extreme Cold Weather Temperature~~;~~

- ~~**2.1.2** For~~ with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; ~~and~~or

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

~~2.1.3 With a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components.~~

~~• Each Generator Owner that does not have freeze protection measures as~~

- ~~required by Requirement R2 Part 2.1 shall develop a Corrective Action Plan.~~Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with ~~Requirement~~ R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and ~~CAP~~Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[3] ~~and is not capable of operating at its Extreme Cold Weather Temperature~~ shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- ~~3.1~~ Implement freeze protection measures that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or

Develop a Corrective Action Plan to add new or modify existing freeze -protection measures~~ to provide such capability;~~

- ~~3.2 Update the cold weather preparedness plan required under Requirement R4~~ to ~~identify the updates or additions to~~ provide the ~~Generator~~capability to operate at the unit(s)' Extreme Cold Weather ~~Critical Components and their freeze protection measures.~~ Temperature.

M3. -Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with ~~Requirement~~ R3, or it has developed a ~~CAP~~Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format):

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[3] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and ~~CAP~~Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

~~4.1~~ 4.1. The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[4]

4.2. The generating unit cold weather data, as determined in ~~Part 1~~Requirement R1.2;

4.3. Documentation identifying Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which ~~may include~~includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate inspections and maintenance ~~has~~have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work

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[4] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1~~–~~**.** A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at generating units owned by the Generator Owner; and

6.3. An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan~~; and~~.

~~**6.4** An identification of updates to the list of Generator Cold Weather Critical Components or their freeze protection measures in the cold weather preparedness plan(s) required under Requirement R4.~~

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): ~~CAP~~Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the ~~CAP~~Corrective Action Plan.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1~~ Specify~~**.** List the action(s) ~~that~~which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan; ~~and~~

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

7.1.2~~Specify~~**.** List the action(s) ~~that~~which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan~~.~~;

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.

7.2. Implement the Corrective Action Plan in accordance with the specified ~~timetable~~timetables in Requirement R7 Part 7.1;

7.3~~—~~**.** Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1~~.~~; and

7.4~~—~~**.** Document in a declaration, with justification, any Generator Cold Weather ~~Constraints~~Constraint that ~~preclude~~precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each ~~CAP~~Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each ~~CAP~~Corrective Action Plan and the completion of actions for each ~~CAP~~Corrective Action Plan including revision history of each ~~CAP~~Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1~~—~~**.** Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and

8.2~~—~~**.** Update the operating limitations associated with capability and availability per ~~Part 1~~R1.2 if applicable~~; and~~.

~~**8.3** Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority.~~

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review ~~of its Generator Cold Weather Constraint declaration,~~ and updated ~~the~~ operating limitations~~, if applicable, and provided the declaration to the Balancing Authority.~~ as needed. Acceptable evidence may include~~,~~ but is not limited to~~,~~ the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and ~~the sharing of each declaration as specified by the Balancing Authority~~update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or ~~revisions~~revision since the last audit, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.

- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather ~~Constrain~~Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8. ~~The Generator Owner shall keep data or evidence to show compliance with Requirement R8 Part 8.3 for three years.~~

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, "Compliance Monitoring and Enforcement Program" refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	**Moderate VSL**	**High VSL**	**Severe VSL**
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for

	5% or less of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units. ~~2. OR~~ ~~The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for 5% or less of its units.~~	more than 5%, but less than or equal to 10% of its applicable units. OR ~~3.~~ The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its ~~units.~~ ~~4. OR~~ ~~The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 5%, but less than or equal to 10% of its~~applicable units.	more than 10%, but less than or equal to 20% of its applicable units. OR ~~5.~~ The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its ~~units.~~ ~~6. OR~~ ~~The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 10%, but less than or equal to 20% of its~~applicable units.	more than 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units. ~~7. OR~~ ~~The Generator Owner did not update its cold weather preparedness plan as required by Requirement R3 Part 3.2 for more than 20% of its units.~~
R4.	The Generator Owner implemented a cold weather preparedness plan(s~~),~~) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s~~),~~) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the	The Generator Owner does not have cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more

			applicable requirement parts within Requirement R4.	of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a ~~CAP~~Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.~~4~~3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.~~4~~3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with three ~~or more~~ of the elements in Requirement R6, Parts 6.1 through 6.~~4~~3. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a ~~CAP~~Corrective Action Plan, but failed to update the ~~CAP~~Corrective Action Plan when corrective	The Generator Owner implemented a ~~CAP~~Corrective Action Plan, but failed to include a timetable for implementing the selected	The Generator Owner implemented a ~~CAP~~Corrective Action Plan, but failed to implement the Corrective Action Plan within the	The Generator Owner failed to implement a ~~CAP in accordance with Requirement R7,~~Corrective Action Plan or failed to document in a

	action(s) changed in accordance with Requirement R7.	corrective actions meeting the criteria of Requirement R7 Part 7.1.	specified timetable~~ in accordance with Requirement R7 Part 7.2,~~ or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1~~ in accordance with Requirement R7 Part 7.3. ~~.	declaration why corrective actions are not being implemented in accordance with Requirement R7~~ Part 7.4~~.
R8.	N/A	~~The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.3.~~N/A	The Generator Owner failed to comply with ~~two~~one of the elements in Requirement R8, Parts 8.1 through 8.~~3~~2.	The Generator Owner failed to comply with ~~any~~all of the elements in Requirement R8, Parts 8.1 through 8.~~3~~2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

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This is the second draft of the proposed standard for a formal 35-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal or informal comment period with additional ballot	October – November 2023

Anticipated Actions	Date
10-day final ballot	January 2024
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component ~~-~~– Any generating unit component and/or system, or associated ~~fixed fuel supply component~~Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

~~**Extreme Cold Weather Temperature** – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.~~

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event ~~-~~– One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit~~ and exceeding~~, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner, using good utility practice,[1] from implementing freeze protection measures on one or more Generator Cold Weather Critical Components.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

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[1] The phrase "good utility practice" is being used in its common understanding. More information on this can be found in the Technical Rationale. This footnote is for information purposes only in the posting and will not be included in the term included in the NERC Glossary of Terms.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-~~1~~2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

4.1. Functional Entities:

4.1.1. Generator Owner

4.1.2. Generator Operator

4.2. Facilities:

4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following Bulk Electric System (BES) resources:

~~**4.2.1.1** A Bulk Electric System generating unit that commits or is obligated to serve a Balancing Authority load pursuant to a tariff obligation, state requirement as defined by the relevant electric regulatory authority, or other contractual arrangement, rule, or regulation, for a continuous run of four hours or more at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius); or~~

4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

~~**4.2.1.2**~~ **4.2.1.2.** A Blackstart Resource

~~**4.2.2** Exemptions:~~

~~Any Bulk Electric System generating unit included under Section 4.2.1 above that has a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) under Requirement R3 Part 3.1 and as part of~~, identified in the ~~required five year review in Requirement R4 Part 4.1 is exempt from further requirements in this standard~~BES definition, inclusion I3.

~~**4.2.2.1** A Bulk Electric System generating unit that is not committed or obligated to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) for any continuous run of more than four hours, but is called upon to operate for more than four hours in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius).~~

5. **Effective Date:** See Implementation Plan for Project 2021-07~~.~~ Phase 2.

B. Requirements and Measures

R1. ~~For~~At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Fuel switching capabilities; and

1.2.1.4. Environmental constraints.

~~)~~**1.2.2.** Generating unit(s) minimum:

- Design temperature and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

~~R1.~~R2. Applicable to generating units with a commercial operation date ~~subsequent to [Effective Date of this requirement], the Generator Owner~~on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

~~•~~ Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate ~~for~~at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours ~~at the Extreme Cold Weather Temperature for the unit(s), assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components;~~, or

- ~~Explain in a declaration any technical, commercial, or~~ (ii) the maximum operational ~~constraints, as defined by the Generator Owner, that preclude the ability to implement appropriate freeze protection measures to provide capability of operating for~~ duration for intermittent energy resources if less than twelve (12) continuous hours ~~at the documented Extreme Cold Weather Temperature.~~ ; or

~~**M1.** Each Generator Owner will have dated evidence that demonstrates it has the capability to operate in accordance with Requirement R1. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Documentation of cold weather preparedness plan, documentation of design features, any declaration that contains dated documentation to support constraints identified by the Generator Owner.~~

- ~~For each generating unit(s) in commercial operation prior to [Effective Date of this requirement], the Generator Owner shall ensure its generating unit(s)~~Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures ~~as needed~~ to provide the capability to operate ~~for a period of not less than one (1) hour~~ at the unit(s)' Extreme Cold Weather Temperature~~. Generating unit(s) that are not capable of operating~~ with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for ~~one (1) hour at its Extreme Cold Weather Temperature shall develop a Corrective Action Plan (CAP) for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3. [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]~~intermittent energy resources if less than twelve (12) continuous hours.

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a ~~CAP~~Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating ~~units~~unit(s) minimum temperature per Part ~~3.5~~1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, ~~cold weather preparedness plan, and CAP~~and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[3] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

4.1. The lowest calculated Extreme Cold Weather Temperature for ~~their~~each unit~~(s) including the calculation date and source of temperature~~, as determined in Requirement R1;[4]

4.2. The generating unit cold weather data~~; –~~, as determined in Requirement R1.2;

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[3] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[4] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

4.3. Documentation identifying ~~the~~ Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which ~~may include~~includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures~~; and~~.

~~**3.1** Generating unit(s) cold weather data, to include:~~

~~**3.1.1** Generating unit(s) operating limitations in cold weather to include:~~

M4. ~~Capability and availability;~~

~~Fuel supply and inventory concerns;~~

~~Fuel switching capabilities; and~~

~~Environmental constraints.~~

~~**3.1.2** Generating unit(s) minimum:~~

- ~~Design temperature;~~
- ~~Historical operating temperature; or~~
- ~~Current cold weather performance temperature determined by an engineering analysis.~~

Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement ~~R3~~R4. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

~~**R3.** Once every five calendar years, each Generator Owner shall for each generating unit: *[Violation Risk Factor: Low] [Time Horizon: Operations Planning, Real-Time Operations]*~~

~~**4.1** Calculate the Extreme Cold Weather Temperature, and update the cold weather preparedness plan if this temperature is now lower than the previous lowest calculation;~~

~~**4.2** Review its documented generating unit(s) minimum temperature contained within its cold weather preparedness plan(s), pursuant to Part 3.5.2; and~~

~~**4.3** Review whether its generating units have the freeze protection measures required to operate at the Extreme Cold Weather Temperature pursuant to R1 or R2 as applicable, and if not develop a CAP for the identified issues, including~~

~~identification of any needed modifications to the cold weather preparedness plan required under Requirement R3.~~

~~**M2.** Each Generator Owner will have dated, documented evidence that it reviewed temperature data and updated its cold weather preparedness plan(s) in accordance with Requirement R4.~~

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement ~~R3~~R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner ~~that owns a~~ shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall ~~develop a CAP,~~be developed within 150 days or by July 1, whichever is earlier, ~~that contains~~and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at ~~other~~ generating units owned by the Generator Owner; and

6.3. An identification of ~~any temporary~~ operating limitations or impacts to the cold weather preparedness plan~~,~~ that would apply until execution of the corrective action(s) identified in the ~~CAP~~Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a ~~CAP~~Corrective Action Plan following a Cold Weather Reliability Event at an applicable

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): ~~CAP~~Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the ~~CAP~~Corrective Action Plan.

R7. Each Generator Owner~~-~~, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.

7.2. Implement ~~each CAP developed pursuant to Requirements R2, R4, or R6, or explain~~the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

7.3. Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration~~ why corrective actions are not being implemented due to any technical, commercial, or operational constraints as defined by~~, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.

~~**7.2** Update each CAP if actions or timetables change, until completed.~~

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each ~~CAP~~Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement ~~R7~~R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each ~~CAP~~Corrective Action Plan and the completion of actions for each ~~CAP~~Corrective Action Plan including revision history of each ~~CAP~~Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review and updated operating limitations as needed. Acceptable evidence may include but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall ~~keep~~retain data or evidence to ~~show compliance for three years~~support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1~~, R3, and R5~~ and Measure M1~~, M3, and M5~~.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3

is complete, whichever timeframe is greater, for ~~Requirement~~Requirements R2 and ~~Measure~~R3 and Measures M2 and M3.

- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4. ~~The Generator Owner shall retain any Corrective Action Plans under Requirement R4 Part 4.3 for three years or until the Corrective Action Plan is complete, whichever timeframe is greater.~~
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. **Compliance Monitoring and Enforcement Program:** As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	**Moderate VSL**	**High VSL**	**Severe VSL**
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.
~~R1~~R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for 5% or less of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability~~Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 5%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 10%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 20% of its applicable units.

		less than or equal to 10% of its applicable units.	less than or equal to 20% of its applicable units.	
~~R2~~R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 20% of its applicable units.
~~R3~~R4.	The Generator Owner implemented a cold weather preparedness plan(s~~),~~) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement ~~R3~~R4.	The Generator Owner had and maintained a cold weather preparedness plan(s~~),~~) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement ~~R3~~R4.	The Generator Owner does not have cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement ~~R3~~R4.
~~R4.~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner failed to complete one of the applicable requirement parts in~~	~~The Generator Owner failed to complete two or more of the applicable requirement parts~~

	~~but was late by 30 calendar days or less.~~	~~but was late by greater than 30 calendar days, but less than or equal to 60 calendar days.~~	~~Requirement R4 Parts 4.1 through 4.3;~~ ~~OR~~ ~~The Generator Owner completed the actions required in Requirement R4, but was late by greater than 60 calendar days.~~	~~in Requirement R4 Parts 4.1 through 4.3.~~
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a ~~CAP~~Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a ~~CAP~~Corrective

				Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a ~~CAP or explained in a declaration why corrective actions are not being implemented~~Corrective Action Plan, but failed to update the ~~CAP~~Corrective Action Plan when ~~actions or timetables~~corrective action(s) changed~~,~~ in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a ~~CAP~~Corrective Action Plan or ~~explain~~failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	~~TBD~~October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2
Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report which called for development of new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012-1 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-1.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements and making other enhancements directed by FERC in the Phase 1 Approval Order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2/EOP-012-1, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with the Phase 1 Approval Order, and proposed Requirement R8 requires Generator Owners to review declarations annually to determine if circumstances have changed and ensures operating limitations caused by the constraints are clearly identified. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter "Phase 1 Approval Order"), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1 but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

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Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2
Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report ~~for~~which called for development of new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012-1 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-~~2~~1.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements and making other enhancements directed by FERC in ~~its February 2023 order.~~the Phase 1 Approval Order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2/EOP-012-1, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with ~~FERC's February 2023 order~~the Phase 1 Approval Order, and proposed Requirement R8 ~~addresses the provision of~~requires Generator ~~Cold Weather Constraint~~Owners to review declarations ~~to~~ annually to determine if circumstances have changed and ensures operating limitations caused by the ~~Balancing Authority, also consistent with FERC's February 2023 order~~constraints are clearly identified. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter "Phase 1 Approval Order"), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1~~,~~ but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

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Unofficial Comment Form

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2

Do not use this form for submitting comments. Use the Standards Balloting and Commenting System (SBS) to submit comments on **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2** by **8 p.m. Eastern, Thursday, November 30, 2023.**

Additional information is available on the project page. If you have questions, contact Manager of Standards Development, Alison Oswald (via email), or at 404-446-9668.

Background Information

Extreme cold weather and precipitation affected the south-central United States February 8-20, 2021. Many generating units experienced outages, derates, or failures to start, resulting in energy and transmission emergencies (referred to as "the Event"). The total Event firm Load shed was the largest controlled firm Load shed event in U.S. history and was the third largest in quantity of outage megawatts (MW) of Load after the August 2003 northeast blackout and the August 1996 west coast blackout. The Event was most severe February 15-18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized bulk-power system reliability. A joint inquiry was conducted to discover reliability-related findings and recommendations from FERC, NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity staff Joint Staff Inquiry into the February 2021 Cold Weather Grid Operations ("Joint Inquiry Report") was published on November 16, 2021.

The scope of the proposed project is to address the ten recommendations for new or enhanced NERC Reliability Standards proposed by the Joint Inquiry Report. In November 2021, the NERC Board of Trustees (Board) approved a Board Resolution directing that new or revised Reliability Standards addressing these recommendations be completed in accordance with the timelines recommended by the joint inquiry team, as follows:

- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2022/2023: development completed by September 30, 2022, for the Board's consideration in October 2022 to address Key Recommendations 1d, 1e, 1f, and 1j;
- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2023/2024: development completed by September 30, 2023, for the Board's consideration in October 2023 to address Key Recommendations 1a, 1b, 1c, 1g, 1h, and 1i.

On February 16, 2023, the Commission issued an order approving proposed Reliability Standards EOP-011-3 and EOP-012-1. The order directed changes in five areas of the standard. Reliability Standard EOP-012-2 was revised to address Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[1]

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[1] Order.

Questions

In Paragraph 66 of the FERC order, the Commission directed NERC to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints in EOP-012-1.

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition to utilize "good utility practice" which has a common understanding as used in the pro forma OATT as approved by FERC. Good utility practice encompasses the three examples previously proposed and additional context is provided in the Technical Rationale. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

   ☐ Yes
   ☐ No

   Comments:

2. Based upon industry comments received, the SDT has re-structured R2 to require generating units to either implement appropriate freeze protection measures or develop a CAP. Do you agree that the revised language provides sufficient clarity? If not, please provide suggested clarifying language.

   ☐ Yes
   ☐ No

   Comments:

Paragraph 88 directed NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet. Such an approach will reduce reliability risks more quickly.

3. In order to meet the FERC directive and reduce reliability risks more quickly, the SDT added new Requirement R7 Part 7.1.4. *"For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units."* Do you agree with this proposed language? If you do not agree, please provide your recommended language.

   ☐ Yes
   ☐ No

   Comments:

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

4. Do you agree that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority thereby providing the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical, or procedural justification.

☐ Yes
☐ No

Comments:

5. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. Do you agree with this proposed timeframe? If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

	EOP-012-1	**EOP-012-2**
Effective Date	10/1/2024	10/1/2024
Have Capability to Operate at ECWT or CAP Developed	4/1/2028	10/1/2025
CAP Completed	no end date specified	10/1/2027 (R7.1.1) or 10/1/2029 (R7.1.2)

☐ Yes
☐ No

Comments:

6. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

   ☐ Yes
   ☐ No

   Comments:

7. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

   Comments:

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Mapping Document

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Summary

This mapping document maps the recommendations from The February 2021 Cold Weather Outages in Texas and the South Central United States report (The Report) to proposed Reliability Standard EOP-012-2. This mapping document also maps how the drafting team considered FERC's directives for further revisions to Reliability Standard EOP-012-1 in its February 16, 2023 approval order[1] in proposed EOP-012-2.

Recommendation 1a

To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start.

Standard: EOP-012-2

Requirement in Approved Standard	Revisions in Standard or Other Action	Description and Change Justification
<u>**Generator Cold Weather Critical Component**</u> - Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	<u>**Generator Cold Weather Critical Component**</u> - Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

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[1] *N. Am. Elec. Reliability Corp.*., 182 FERC ¶ 61,094 (2023) (approving Reliability Standards EOP-011-3 and EOP-012-1 and directing further revisions to EOP-012-1 and the implementation plan) ("February 2023 Order").

	or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **<u>Fixed Fuel Supply Component</u>** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.2** Documentation identifying the Generator Cold Weather Critical Components	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.3** Documentation identifying Generator Cold Weather Critical Components	The SDT maintained the language in approved EOP-012-1 R3 and moved it to R4 for Generators Owners to identify Generator Cold Weather Critical Components to meet recommendation 1a.

Recommendation 1b

To require Generator Owners to identify and implement freeze protection measures for the cold-weather-critical components and systems. The Generator Owner should consider previous freeze-related issues experienced by the generating unit, and any corrective or mitigation actions taken in response. At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
Generator Cold Weather Critical Component Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

	parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.3** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generators Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.
This requirement does not exist in the currently approved standard.	**R6.** Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32	To meet recommendation 1b "the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary", the drafting team has

	degrees Fahrenheit (zero degrees Celsius),[2] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: **6.3.** An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.	proposed R6.3. through the CAP process for Generator Owners to update the list of Generator Cold Weather Critical Components in the cold weather preparedness plan in R4.
R.1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning] **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and **1.2.1**. If the re-calculated Extreme Cold Weather Temperature is lower than the	**R4.** Once every five calendar years, each Generator Owner shall for each generating unit: [*Violation Risk Factor: Low*] [*Time Horizon: Operations Planning, Real-Time Operations*] **4.1** Calculate the Extreme Cold Weather Temperature, and update the cold weather preparedness plan if this temperature is now lower than the previous lowest calculation; **4.2** Review its documented generating unit(s) minimum temperature contained within its cold weather preparedness plan(s), pursuant to Part 3.5.2; and	The standard drafting team reorganized the standard to provide clarity to the applicability and requirements consistent with the FERC directives. Requirement R1 sets the stage for subsequent requirements. Requirement R1 specifies that each Generator Owner shall calculate its Extreme Cold Weather Temperature at least once every five years and, if the recalculated temperature is now lower than what it was previously, update its plan and freeze

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within six (6) months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and **1.2.1.4.** Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature and if available, the concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and	**4.3** Review whether its generating units have the freeze protection measures required to operate at the Extreme Cold Weather Temperature pursuant to R1 or R2 as applicable, and if not develop a CAP for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3.	protection measures to provide capability to operate at the new, lower temperature. This requirement addresses the last sentence of Recommendation 1b: "At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary."

if available, the concurrent wind speed and precipitation; or - Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.		

Recommendation 1c
To revise EOP-011-2, R7.3.2, to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
3.5.2 Generating unit(s) minimum: • Design temperature; • Historical operating temperature; or • Current cold weather performance temperature determined by an engineering analysis.	**1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	The SDT has proposed modifications to the existing language in EOP-012-1 R3.5.2 and moved it to R1.2.2 to account for the effects of precipitation and the cooling effects of wind when providing the generating unit minimum temperature.
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum:	**R4**. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generators Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.

3.3 Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and	

FERC February 2023 Order Directives – Applicability (Paragraphs 58-60)

The Commission directed NERC to revise the applicability of the standard to ensure that it captures all BES generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions, consistent with the drafting team's stated intent. The Commission also directed NERC to revise the EOP-012-1 standard to ensure that all BES generating units are required to maintain and train on cold weather preparedness plans and maintain information regarding cold weather operating parameters consistent with EOP-011-2 Requirements R7 and R8.

The Commission deferred its decision on whether to approve the proposed effective date of EOP-011-3 until NERC submits the revised applicability section of EOP-012 to ensure all entities currently covered by the EOP-011-2 standard would remain covered under the revised EOP-012 standard.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 58: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to ensure that it captures all bulk electric system generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions...NERC should ensure the modified applicability is implemented as of the effective date of Reliability Standard EOP-012-1."	**4.2. Facilities:** **4.2.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources: **4.2.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.2.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3.	The SDT determined that EOP-012-1 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a Bulk Electric System (BES) resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC

		Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Requirements for generator cold weather freeze protection measures would continue to apply only to generation that is relied upon during freezing conditions, consistent with EOP-012-1 and the recommendations of the Joint Inquiry Report. However, those limitations are identified in those specific requirements, rather than in the applicability sections of the standard.
PP 59-60: "Given the lack of clarity in the proposed applicability criteria for EOP-012-1, we are concerned that the standard could apply to significantly fewer generators than the existing Reliability Standard EOP-011-2 Requirements R7 and R8…. Furthermore, we are concerned that the proposed applicability criteria for EOP-012-1 and retirement of EOP-011-2 Requirements R7 and R8 will eliminate valuable information on cold weather preparedness of generating units that typically do not operate during the winter….	**R1.** At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and **1.1.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan	The SDT proposes a new R1 which does not have any exclusions meaning all generating units subject to this standard under the facilities section will be subject to this requirement. For more information on applicable entities please see the write-up above.

The loss of this information concerns us as the proposed applicability of EOP-012-1 recognizes that units that do not typically run during the winter may be called upon during emergencies. We therefore direct NERC to modify EOP-012-1 to ensure that this information remains available.”	under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within six (6) months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and **1.2.1.4.** Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature and if available, the	

	concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	

FERC Order Directives - Generator Constraints to Implementing Winterization Requirements (Paragraph 66)

The Commission directed NERC to develop modifications to EOP-012-1 Requirements R1 and R7 to address concerns related to generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures. Specifically, the Commission directed NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 66: "[W]e direct NERC…to develop and submit modifications to Reliability Standard EOP-012-1 Requirements R1 and R7 to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures and to ensure that the constraint declarations may not be used to opt-out of compliance with the Standard or obligations set forth in a corrective action plan. Specifically, we direct NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners'	**Generator Cold Weather Constraint** – Any condition that would preclude a Generator Owner, using good utility practice,[3] from implementing freeze protection measures on one or more Generator Cold Weather Critical Components. *AND* **R8.** Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: **8.1.** Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and **8.2.** Update the operating limitations associated with capability and availability per R1.2 if applicable.	The SDT proposed a new defined term, Generator Cold Weather Constraint, which relies on the common understanding of "good utility practice" for what qualifies as a permissible constraint. The FERC order directed NERC to "identify the appropriate entity that would receive the generator owner's constraint declarations." The SDT believes that the intent of this language is for identified operating limitations to be provided to necessary entities who have a wide area view (i.e., Balancing Authorities or Reliability Coordinators) and are responsible for grid planning and reliability. The drafting team has written Requirement R8 to require

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[3] The phrase "good utility practice" is being used in its common understanding. More information on this can be found in the Technical Rationale.

constraint declarations under EOP-012-1 Requirements R1 and R7.		Generator Owners to update the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003 and IRO-010. The standard drafting team understands that issues related to compliance with the standard and entity use of the constraint provisions will be addressed as part of the work plan submitted in accordance with PP94-96.

FERC Order Directives - Generator Capability Requirements (Paragraphs 89-90)

The Commission directed NERC to modify EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the standard. The Commission also directed NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.

Standard: EOP-012-2

FERC Order Directives	Transition to New Standard or Other Action	Description and Change Justification
P 89: [W]e direct NERC to modify the Standard to clarify Reliability Standard EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard.”	**4.3. Facilities:** **4.3.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following BES resources: **4.3.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.3.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3. *AND* **R2.** Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or	The SDT proposes a new facilities section with include all BES generating units in the standard. Additionally, Requirement R2 has been modified to cover the example in the order “(e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard.” Requirement R2 provides that intermittent energy resources should have the capability to provide as much generation as operationally possible if that is less than 12 hours.

	below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] shall: • Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)’ Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or • Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)’ Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum	

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	operational duration for intermittent energy resources if less than twelve (12) continuous hours.	
P 90: "We also find that the one-hour continuous operations requirement in Reliability Standard EOP-012-1 Requirement R2 is too short of a period to adequately meet the purpose of the Standard to ensure generating units "mitigate the reliability impacts of extreme cold weather[.]" Thus, we direct NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.	**R3.** Applicable to generating unit(s) in commercial operation prior to October 1, 2024: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] shall: • Implement freeze protection measures that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or • Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.	The SDT did not intend for the requirement to be interpreted as a 1 – hour reliability requirement. As such, the 1-hour statement has been removed from the standard to make sure there is no misunderstanding.

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

FERC Order Directives - Corrective Action Plan Deadlines (Paragraph 79)

For any requirement requiring the development of a corrective action plan to address capability or cold weather performance issues, the Commission directed NERC to include a deadline or maximum period for the completion of corrective action plan measures.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 79: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to address concerns related to the lack of an implementation timeframe for corrective action plans. Specifically, we direct NERC to include in the Standard a deadline or maximum period for the implementation completion of corrective action plans under the Standard."	**R7.** Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: **7.1.** Include a timetable for implementing the selected corrective action(s) that shall: **7.1.1.** List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan; **7.1.2.** List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;	The SDT proposed new Requirement R7 which includes timetables for CAP completion. These timetables are consistent with those provided for corrective actions in the TPL-007 standard.

FERC Order Directives - Implementation Plan Considerations (Paragraphs 37, 58, 88)
The Commission directed NERC to require a shorter implementation period than five years post approval, as well as a staggered implementation for unit(s) across a generator owner's fleet (e.g., 30% compliant by Year X, 60% compliant by Year Y, 100% compliant by Year Z). The Commission also directed NERC to develop standards modifications addressing standard applicability and other matters without delaying the effective date of EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 88: "[W]e direct NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet… Although we are giving NERC the discretion to determine what the effective date should be shortened to, we also emphasize that industry has been aware of and alerted to the need to prepare their generating units for cold weather since at least 2011. NERC should consider the amount of time that industry has already had to implement freeze protection measures when determining the appropriate shorter implementation period."	**Compliance Date for EOP-012-2 - Requirement R3** Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2. *AND* **R7.** Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: **7.1.** Include a timetable for implementing the selected corrective action(s) that shall: **7.1.4.** For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.	The Commission allows NERC to propose an equally effective and efficient solution to a solution offered by the Commission to address a reliability matter. The Commission expressed concern regarding the length of the original EOP-012-1 implementation plan and identified to reduce reliability risks more quickly – a shortened plan with a staggered implementation period. The standard drafting team has determined an alternative proposal, to shorten the implementation period for winterization measures to 12 months across an entire fleet, addresses the Commission's concerns in an equally effective and efficient manner. The implementation of such measures would be subject to deadlines for Corrective Action Plan measures in EOP-012-2

		Requirement R7. This proposal provides certainty as to the timeframes required for action, reduces reliability risks more quickly than the EOP-012-1 plan it replaces, and avoids some of the administrative burdens and uncertainties with a percent compliant implementation plan, particularly for entities with nationwide fleets or multiple NCR/MRRE registrations. Further, this approach provides entities with flexibility to implement corrective actions across their fleets in an efficient manner, such as where similar units across a fleet require similar changes. Additionally, the SDT has proposed Requirement R7 Part 7.1.4. for entities to stagger CAP implementation across the time frames proposed in Part 7.1.1 and 7.1.2 to encourage entities to complete CAPs earlier in the timeline if possible and to not delay implementation across their fleets until the latest possible date.
P 37: "[W]e also direct NERC to develop modifications to address the concerns regarding Requirements R1 and R7, as well as other concerns we have identified as to other aspects of Reliability Standard EOP-012-1,		Under the proposed implementation plan, Reliability Standard EOP-012-2 would become effective on the later of: (1) October 1, 2024, which is the date EOP-012-1 is scheduled to become

without delaying the effective date of Reliability Standard EOP-012-1." P 58: "…NERC should ensure the modified applicability [of the EOP-012 standard] is implemented as of the effective date of Reliability Standard EOP-012-1."		effective; or (2) the first day of the first calendar quarter that is three months following Commission approval. Thus, the effective date of a revised EOP-012 standard addressing the Commission's concerns would not be delayed past the effective date of EOP-012-1, so long as EOP-012-2 is approved before July 1, 2024. Any delay after that time would be modest and in the interest of providing sufficient notice to entities of their revised obligations.

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Violation Risk Factor and Violation Severity Level Justifications

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

This document provides the standard drafting team's (SDT's) justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination. Each requirement is assigned a VRF and a VSL. These elements support the determination of an initial value range for the Base Penalty Amount regarding violations of requirements in FERC-approved Reliability Standards, as defined in the Electric Reliability Organization's (ERO) Sanctions Guidelines. The SDT applied the following NERC criteria and FERC Guidelines when developing the VRFs and VSLs for the requirements.

NERC Criteria for Violation Risk Factors

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

A requirement that, if violated, could directly affect the electrical state or the capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System. However, violation of a medium risk requirement is unlikely to lead to Bulk Electric System instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to Bulk Electric System instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System.

FERC Guidelines for Violation Risk Factors

Guideline (1) – Consistency with the Conclusions of the Final Blackout Report

FERC seeks to ensure that VRFs assigned to Requirements of Reliability Standards in these identified areas appropriately reflect their historical critical impact on the reliability of the Bulk-Power System. In the VSL Order, FERC listed critical areas (from the Final Blackout Report) where violations could severely affect the reliability of the Bulk-Power System:

- Emergency operations
- Vegetation management
- Operator personnel training
- Protection systems and their coordination
- Operating tools and backup facilities
- Reactive power and voltage control
- System modeling and data exchange
- Communication protocol and facilities
- Requirements to determine equipment ratings
- Synchronized data recorders
- Clearer criteria for operationally critical facilities
- Appropriate use of transmission loading relief.

Guideline (2) – Consistency within a Reliability Standard

FERC expects a rational connection between the sub-Requirement VRF assignments and the main Requirement VRF assignment.

Guideline (3) – Consistency among Reliability Standards

FERC expects the assignment of VRFs corresponding to Requirements that address similar reliability goals in different Reliability Standards would be treated comparably.

Guideline (4) – Consistency with NERC's Definition of the Violation Risk Factor Level

Guideline (4) was developed to evaluate whether the assignment of a particular VRF level conforms to NERC's definition of that risk level.

Guideline (5) – Treatment of Requirements that Co-mingle More Than One Obligation

Where a single Requirement co-mingles a higher risk reliability objective and a lesser risk reliability objective, the VRF assignment for such Requirements must not be watered down to reflect the lower risk level associated with the less important objective of the Reliability Standard.

NERC Criteria for Violation Severity Levels

VSLs define the degree to which compliance with a requirement was not achieved. Each requirement must have at least one VSL. While it is preferable to have four VSLs for each requirement, some requirements do not have multiple "degrees" of noncompliant performance and may have only one, two, or three VSLs.

VSLs should be based on NERC's overarching criteria shown in the table below:

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

FERC Order of Violation Severity Levels

The FERC VSL guidelines are presented below, followed by an analysis of whether the VSLs proposed for each requirement in the standard meet the FERC Guidelines for assessing VSLs:

Guideline (1) – Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance

Compare the VSLs to any prior levels of non-compliance and avoid significant changes that may encourage a lower level of compliance than was required when levels of non-compliance were used.

Guideline (2) – Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties

A violation of a "binary" type requirement must be a "Severe" VSL.

Do not use ambiguous terms such as "minor" and "significant" to describe noncompliant performance.

Guideline (3) – Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement

VSLs should not expand on what is required in the requirement.

Guideline (4) – Violation Severity Level Assignment Should Be Based on a Single Violation, Not on a Cumulative Number of Violations

Unless otherwise stated in the requirement, each instance of non-compliance with a requirement is a separate violation. Section 4 of the Sanctions Guidelines states that assessing penalties on a per violation per day basis is the "default" for penalty calculations.

EOP-012-2

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
NERC VRF Discussion	A VRF of Lower is appropriate due to the fact that calculating the Extreme Cold Weather Temperature and identifying generating unit cold weather data is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Lower VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Lower VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC	This VRF is in line with the definition of a Lower VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
Definitions of VRFs	
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R1			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R1	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R1	
Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R2

The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1).

VSL Justification for EOP-012-2, Requirement R2

The VSL had minor changes from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1) due to changes in the standard language and reorganization of requirements.

VSLs for EOP-012-2, Requirement R2

Lower	Moderate	High	Severe
The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for 5% or less of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability~~ Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not ~~explain in~~ develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~ Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~ Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~ Corrective Action Plan for more than 20% of its applicable units.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of medium is appropriate due to the fact generating units that are not capable of operating at its Extreme Cold Weather Temperature could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
Guideline 1- Consistency with Blackout Report	
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSL Justification for EOP-012-2, Requirement R3

The VSL had minor changes due to changes in the standard language from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R2).

VSLs for EOP-012-2, Requirement R3			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not have freeze protection measure(s)	The Generator Owner did not have freeze protection measure(s)	The Generator Owner did not have freeze protection measure(s)	The Generator Owner did not have freeze protection measure(s) meeting

meeting the criteria in Requirement ~~R2~~R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for 5% or less of its applicable units.	meeting the criteria in Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units.	meeting the criteria in Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units.	the criteria in Requirement ~~R2~~R3 for more than 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R3	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R3	
Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R4

The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VSL Justification for EOP-012-2, Requirement R2

The VSL did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VRF Justification for EOP-012-2, Requirement R5

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R5

The VSL did not change from the previous EOP-012-1 Reliability Standard.

VRF Justification for EOP-012-2, Requirement R6

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R6

VSL had minor changes due to minor revisions in the standard language.

VRF Justification for EOP-012-2, Requirement R7

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R7

VSL had changes due to revisions in the standard language.

VSLs for EOP-012-2, Requirement R7			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner implemented a ~~CAP or explained in a declaration why corrective actions are not being implemented~~Corrective Action Plan, but failed to update the ~~CAP~~Corrective Action Plan when ~~actions or timetables~~corrective action(s) changed~~,~~ in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a ~~CAP~~Corrective Action Plan or ~~explain~~failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of Medium is appropriate due to the fact that not updating Generator Cold Weather Constraint declarations and updating operating limitations associated with capability and availability could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
Blackout Report	
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R8			
Lower	**Moderate**	**High**	**Severe**
N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

VSL Justifications for EOP-012-2, Requirement R8	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

October 2023

RELIABILITY | RESILIENCE | SECURITY

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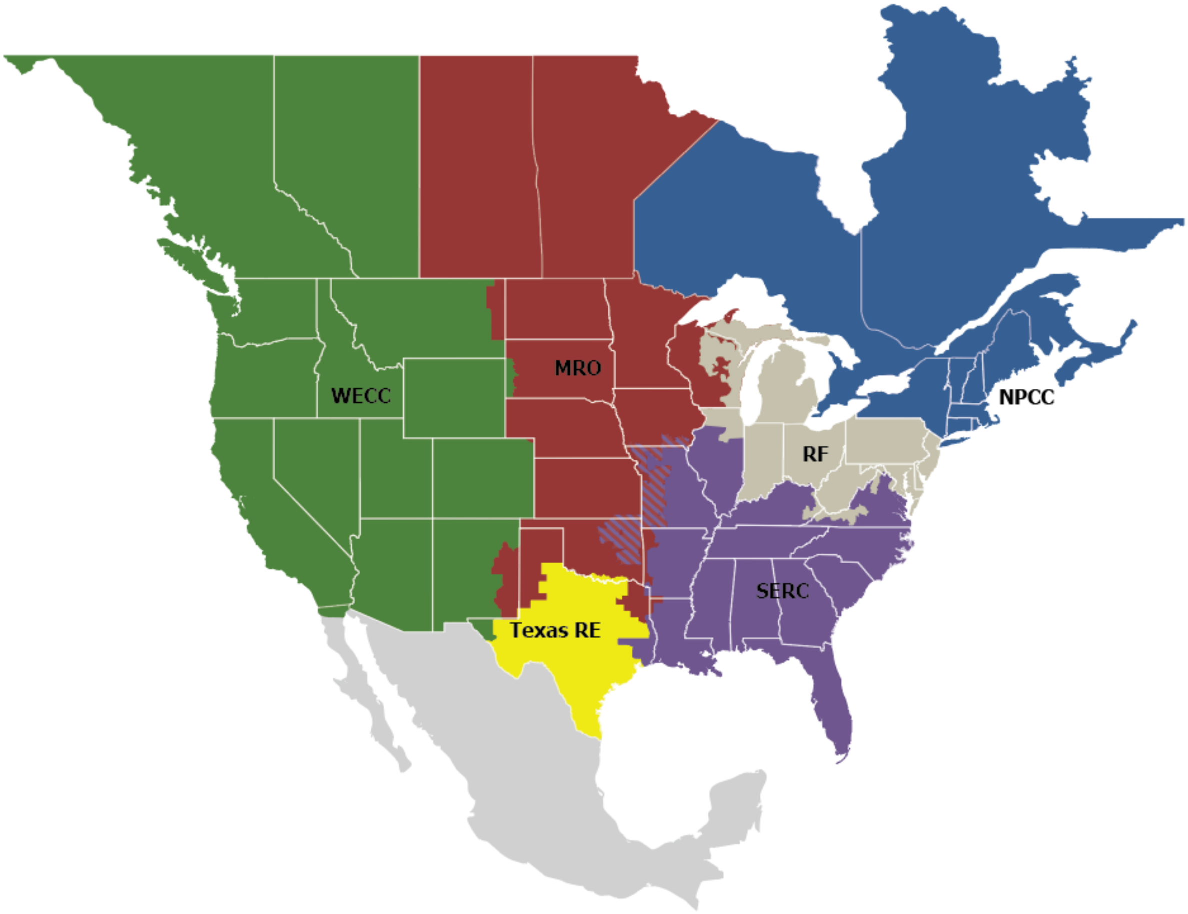
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities, is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entity boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources would include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. GOs may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports at a 99%+ availability. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature, but upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility.

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

Generator Cold Weather Critical Component

Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing and are critical to the operation of generating units. GOs should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components. The SDT also felt it is appropriate to specifically exclude components that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner would not constitute a freezing condition in the context of this Standard and therefore these lines would not be considered a Generator Cold Weather Critical Component.

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement, but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

<u>Key Recommendation 1d:</u> *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or*

failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment. The SDT felt that it was important to clearly call out freezing precipitation as these events were included in the outages and derates that identified as freezing in the Joint Inquiry Report. Furthermore, Key Recommendation 1c of the report requires GOs to account for the effect of precipitation. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. Also excluded are proactive operational actions to limit the potential of forced outages or derates. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs). From the GADS data reporting instructions, the startup period for each unit is determined by the operating company. It is unique for each unit and depends on the condition of the unit at the time of startup (cold, warm, and hot). A typical unit startup occurs in three phases: warm up, synchronization, and ramp up. NERC defines a startup period to begin with the command to start and end when the unit is synchronized. A Startup Failure begins when a problem preventing the unit from synchronizing occurs. The Startup failure ends when the unit is synchronized, another Startup Failure occurs, or the unit enters another permissible state.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement

- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint

Any condition that would preclude a Generator Owner, using good utility practice, from implementing freeze protection measures on one or more Generator Cold Weather Critical Components.

The SDT reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. The SDT relied upon "good utility practice" which has a common understanding as used in the *pro forma* OATT as:

Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4).

The following non-comprehensive list contains examples that may, depending on the circumstances, constitute a Generator Cold Weather Constraint(s):

- Warranties that would be voided by application of a freeze protection measure
- Accelerated retirement of an existing generating unit
- Cancellation of new generating unit(s)
- Reduction in summer capability
- Introduces an increased personnel or safety risk
- Introduces a risk of noncompliance with environmental regulations
- Compromised ability to provide ancillary services
- Technology not utilized by a significant portion of the electric utility industry

Ultimately, it will be the GO's responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented.

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard.

Facilities

4.1. *Facilities:*

  4.1.1. *Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:*

    4.1.1.1. *A BES generating resource identified in the BES definition, Inclusion I2 and I4; or*

    4.1.1.2. *A Blackstart Resource, identified in the BES definition, Inclusion I3.*

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

1.1. *Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and*

1.1.1. *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.*

1.2. *Identify generating unit(s) cold weather data, to include:*

1.2.1. *Generating unit(s) operating limitations in cold weather to include:*

1.2.1.1. *Capability and availability;*

1.2.1.2. *Fuel supply and inventory concerns;*

1.2.1.3. *Fuel switching capabilities; and*

1.2.1.4. *Environmental constraints.*

1.2.2. *Generating unit(s) minimum:*

- *Design temperature and if available, the concurrent wind speed and precipitation;*
- *Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or*
- *Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and precipitation. Consideration of wind and precipitation, along with the minimum temperature, provide a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or*
- *Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, 2024). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

GOs with generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then must implement the CAP according to R7. In addition, it is recognized that Generator Cold Weather Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.4, the option for the GO to make a declaration supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter in

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

most regions of the US and Canada. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather condition.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, 2024: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[6] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or*
- *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.*

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3 as to not create an unreasonable compliance obligation. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

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[6] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

- ***4.1*** *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*
- ***4.2*** *The generating unit cold weather data, as determined in Part 1.2;*
- ***4.3*** *Documentation identifying Generator Cold Weather Critical Components;*
- ***4.4*** *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*
- ***4.5*** *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2, and is intended to be used and reviewed regularly by the GO. R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003 and IRO-01. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The document *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[7], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[7] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

R5. *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: *To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.*

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an "annual" basis. The Joint Inquiry Report explains "Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area."[8] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word "annual" to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The training shall be provided to operational personnel who are responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. The operational personnel includes employees of the Registered Entity as well as any dedicated on-site full-time contractors or equipment OEM personnel responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures

The training for personnel shall include instructions on actions taken to prepare the generating unit(s) for cold weather operations prior to the cold weather season as well as on actions taken when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, review of special inspections or rounds implemented during severe weather, fuel switching procedures, and maintenance of freeze protection measures, etc.

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[8] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[9] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

- **6.1.** *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*
- **6.2.** *A review of applicability to similar equipment at generating units owned by the Generator Owner; and*
- **6.3.** *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.*

<u>*Key Recommendation 1d:*</u> *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.*

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads "A list of actions and an associated timetable for implementation to remedy a specific problem." As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

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[9] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the RTO's.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site's ECWT. By using the site's ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that Generators may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. *Include a timetable for implementing the selected corrective action(s) that shall:*

7.1.1. *List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;*

7.1.2. *List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;*

7.1.3. *List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and*

7.1.4. *For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.*

7.2. *Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;*

7.3. *Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and*

7.4. *Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. At the same time, the SDT recognizes that the following limitations make the 24 and 48 calendar months maximum timelines reasonable: scoping applicability to similar units, freeze protection engineering and design, project development, annual budgeting process, material supply lead times, outage scheduling, skilled labor availability, and startup/commissioning. Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future. The SDT added part 7.1.3. for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues.
The SDT introduced part 7.1.4. requiring GOs to stagger implementation of their corrective action plans to ensure that they are proactively implementing freeze protection measures and not utilizing the 24 and 48 calendar month timeframes as a basis to not proactively implement freeze protection measures when possible. The SDT understands that outage, equipment, and labor availability will naturally lead to some level of staggering, but wanted to explicitly indicate that this was an expected requirement as well.

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. GOs that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

Requirement R8

R8. *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

- ***8.1*** *Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and*
- ***8.2*** *Update the operating limitations associated with capability and availability per Part 1.2 if applicable.*

In the FERC order, the Commission expressed concern that a GO may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT[10]. An additional concern was that the constraint declarations may be used by a functional entity as an opt-out of compliance set forth in the standards or a corrective action plan.[11] To mitigate the concern, the Commission directed NERC to work with Commission staff and submit a data collection and assessment plan that contains information related to GO constraint declarations and explanations thereof.[12]

The SDT developed R8 to require the GO to perform an annual review and update any constraint declarations as needed. Updated constraint declarations would also require an update to the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003 and IRO-010.

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[10] FERC Order, 182 FERC ¶ 61,094 at P 64.

[11] Id. At P 66.

[12] See id at PP 11, 68, 94-95.

NERC
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Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

~~June~~October 2023

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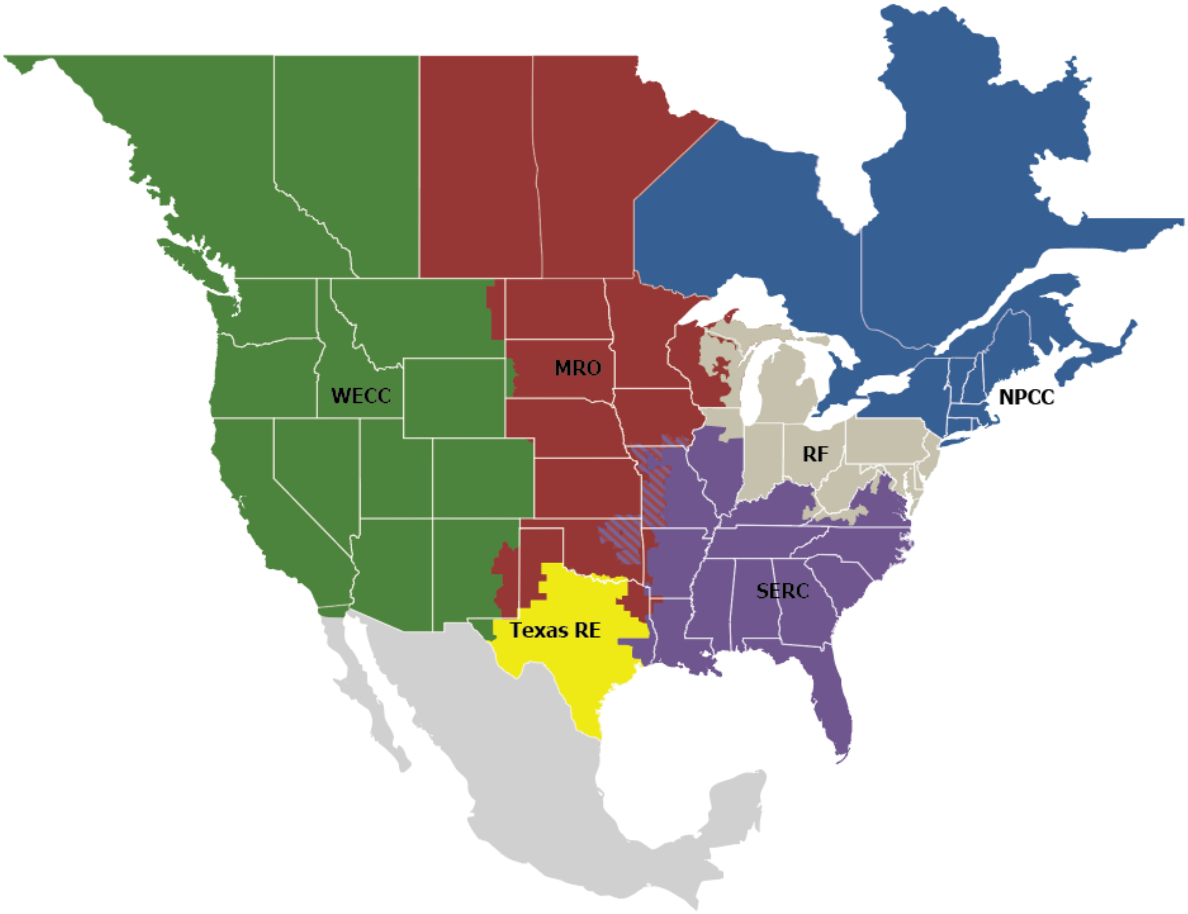
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities, is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entity boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources would include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. ~~Generator Owners~~GOs may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports at a 99%+ availability. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature, but~~,~~ upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility.

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

Generator Cold Weather Critical Component

Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing~~,~~ and are critical to the operation of generating units. ~~Generator Owners~~GOs should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components. The SDT also felt it is appropriate to specifically exclude components that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner ~~(TO)~~ would not constitute a freezing condition in the context of this Standard and therefore these lines would not be considered a Generator Cold Weather Critical Component.

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement, but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) ~~(1)~~ a forced derate of more than 10% of the total capacity of the unit ~~and exceeding~~ but not less than 20 MWs for longer than four hours in duration;

(2) ~~(2)~~ a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Key Recommendation 1d: *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or*

failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing~~.~~ of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment. The SDT felt that it was important to clearly call out freezing precipitation as these events were included in the outages and derates that identified as freezing in the Joint Inquiry Report. Furthermore, Key Recommendation 1c of the report requires GOs to account for the effect of precipitation. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of ~~de-rate~~derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as ~~4~~four hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. Also excluded are proactive operational actions to limit the potential of forced outages or derates. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs). From the GADS data reporting instructions, the startup period for each unit is determined by the operating company. It is unique for each unit and depends on the condition of the unit at the time of startup (cold, warm, and hot). A typical unit startup occurs in three phases: warm up, synchronization, and ramp up. NERC defines a startup period to begin with the command to start and end when the unit is synchronized. A Startup Failure begins when a problem preventing the unit from synchronizing occurs. The Startup failure ends when the unit is synchronized, another Startup Failure occurs, or the unit enters another permissible state.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement

- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint~~(s)~~

*~~**A limitation**~~Any condition that would ~~**prohibit**~~preclude a Generator Owner, using good utility practice, from implementing freeze protection measures on one or more Generator Cold Weather Critical Components. ~~**A constraint must fall under one of the following areas:**~~*

- ~~*Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.*~~
- ~~*Commercial Constraint – A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation.*~~
- ~~*Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.*~~

The SDT ~~Reviewed~~reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. ~~The SDT has provided additional clarity via the definition above to further remove the ambiguity regarding technical, commercial, and operational constraints. The essence of the constraint should be such that implementing the freeze protection measure is not possible or would be more detrimental than not implementing the freeze protection measure when considering the overall impacts to reliability. The following examples are provided by the SDT for clarity~~The SDT relied upon "good utility practice" which has a common understanding as used in the *pro forma* OATT as:

~~Commercial Constraints:~~

Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4).

The following non-comprehensive list contains examples that may, depending on the circumstances, constitute a Generator Cold Weather Constraint(s):

- Warranties that would be voided ~~warranties, accelerated~~by application of a freeze protection measure
- Accelerated retirement of ~~the~~an existing generating unit~~, cancellation~~
- Cancellation of new ~~projects, etc.~~generating unit(s)
- ~~Operational Constraints: limited fuel supply, voided warranties, required outage time to implement, reduction~~Reduction in summer capability~~, etc.~~
- ~~Technical Constraints: no examples provided due to the dynamic nature of technology~~
- Introduces an increased personnel or safety risk
- Introduces a risk of noncompliance with environmental regulations

- Compromised ability to provide ancillary services
- Technology not utilized by a significant portion of the electric utility industry

Ultimately, it will be the GO's responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented.

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard.

Facilities

4.1. Facilities:

  4.1.1. *Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:*

    4.1.1.1. *A BES generating resource identified in the BES definition, Inclusion I2 and I4; or*

    4.1.1.2. *A Blackstart Resource, identified in the BES definition, Inclusion I3.*

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

  1.1. *Calculate the Extreme Cold Weather Temperature for each of its applicable ~~generating~~ unit(s) and identify the calculation date and source of temperature data; and*

    1.1.1. *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement ~~R2 or~~ R3, the entity shall develop a Corrective Action Plan within ~~six~~6 months of the recalculation~~; and~~.*

  1.2. *Identify generating unit(s) cold weather data, to include:*

    1.2.1~~—~~. *Generating unit(s) operating limitations in cold weather to include:*

      1.2.1.1~~-~~. *Capability and availability;*

      ~~1.2.~~1.2~~–~~.1.2. *Fuel supply and inventory concerns;*

      1.2.1.3~~–~~. *Fuel switching capabilities; and*

      1.2.1.4~~–~~. *Environmental constraints.*

    ~~–~~1~~.2~~.2~~–~~.2. *Generating unit(s) minimum:*

- *Design temperature and if available, the concurrent wind speed and precipitation;*
- *Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or*
- *Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and precipitation. Consideration of wind and precipitation, along with the minimum temperature, provide a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),*[1] *shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *~~Have~~Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate~~:~~*

  ~~2.1.1 At~~ at the unit(s)' Extreme Cold Weather Temperature~~;~~

  - *~~2.1.2 For~~ with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; ~~and~~or*

  ~~2.1.3 With a sustained concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components.~~

- *~~Each Generator Owner that does not have freeze protection measures as~~*
  - *~~required by Requirement R2 Part 2.1 shall develop a Corrective Action Plan.~~Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, 2024). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

~~New~~GOs with generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then ~~has up to 48 months to complete~~must implement the CAP according to ~~meet Requirement R2~~R7. In addition, it is recognized that Generator Cold Weather Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.~~3~~4, the option for the GO to make a declaration supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter in most regions of the US and Canada. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather condition.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, ~~2027~~2024: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),~~ and is not capable of operating at its Extreme Cold Weather Temperature~~[6] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *~~3.1~~ Implement freeze protection measures that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or*
- *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide ~~such~~the capability~~;~~ to operate at the unit(s)' Extreme Cold Weather Temperature.*

~~3.2 Update the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures.~~

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3 as to not create an unreasonable compliance obligation. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

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[6] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

4.1 *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*

4.2 *The generating unit cold weather data, as determined in Part 1.2;*

4.3 *Documentation identifying Generator Cold Weather Critical Components;*

4.4 *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*

4.5 *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2, and is intended to be used and reviewed regularly by the GO~~;~~. R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003 and IRO-01. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The document *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[7], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[7] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

R5. *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an “annual” basis. The Joint Inquiry Report explains “Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area.”[8] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word “annual” to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The training shall be provided to ~~appropriate~~operational personnel ~~should be comprehensive. This includes training~~who are responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. The operational personnel includes employees of the Registered Entity as well as any dedicated on-site full-time contractors or equipment OEM personnel responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures

The training for personnel shall include instructions on actions taken to prepare the generating unit(s) for cold weather operations~~. This also includes training for personnel on necessary~~ prior to the cold weather season as well as on actions ~~to take~~taken when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, review of special inspections or rounds implemented during severe weather, fuel switching procedures, ~~etc.~~ and maintenance of freeze protection measures, etc.

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[8] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. ~~–~~ *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),*[9] *develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1~~–~~**.** *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*

6.2. *A review of applicability to similar equipment at generating units owned by the Generator Owner; and*

6.3. *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan~~; and~~.*

~~**6.4** *An identification of updates to the list of Generator Cold Weather Critical Components or their freeze protection measures in the cold weather preparedness plan(s) required under Requirement R4.*~~

Key Recommendation 1d: To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

~~While there were no specific directives regarding R6 (creation of a CAP) in the FERC Order, the SDT added R 6.4 for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues.~~

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of ~~de-rate~~derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event ~~effects~~affects the equipment within

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[9] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads “A list of actions and an associated timetable for implementation to remedy a specific problem.” As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as ~~4~~four hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of “following an outage or reserve shutdown”, since the definition of reserve shutdown is different in GADS than it is in some of the RTO’s.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site’s ECWT. By using the site’s ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that Generators may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. *Include a timetable for implementing the selected corrective action(s) that shall:*

7.1.1~~*Specify*~~**.** *List the action(s)* ~~*that*~~*which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;* ~~*and*~~

7.1.2~~*Specify*~~**.** *List the action(s)* ~~*that*~~*which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan*~~.~~*;*

7.1.3. *List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and*

7.1.4. *For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.*

7.2. *Implement the Corrective Action Plan in accordance with the specified* ~~*timetable*~~*timetables in Requirement R7 Part 7.1;*

7.3~~—~~**.** *Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1*~~.~~*; and*

7.4~~—~~**.** *Document in a declaration, with justification, any Generator Cold Weather* ~~*Constraints*~~*Constraint that* ~~*preclude*~~*precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. At the same time, the SDT recognizes that the following limitations make the 24 and 48 calendar months maximum timelines reasonable: scoping applicability to similar units, freeze protection engineering and design, project development, annual budgeting process, material supply lead times, outage scheduling, skilled labor availability, and startup/commissioning. Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future. The SDT added part 7.1.3. for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues. The SDT introduced part 7.1.4. requiring GOs to stagger implementation of their corrective action plans to ensure that they are proactively implementing freeze protection measures and not utilizing the 24 and 48 calendar month timeframes as a basis to not proactively implement freeze protection measures when possible. The SDT understands that outage, equipment, and labor availability will naturally lead to some level of staggering, but wanted to explicitly indicate that this was an expected requirement as well.

Requirement R7

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. ~~Generator Owners~~GOs that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

Requirement R8

R8. *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1 *Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and*

8.2 *Update the operating limitations associated with capability and availability per Part 1.2 if applicable~~; and~~.*

~~***8.3*** *Provide the Generator Cold Weather Constraint declaration to the Balancing Authority in the format and at the interval specified by the Balancing Authority.*~~

In the FERC order, the Commission expressed concern that a ~~Generator Owner~~GO may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT[10]. ~~To address this concern, the SDT has developed R8 to require the GO to provide the constraint declaration to the Balancing Authority and update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.~~An additional concern was that the constraint declarations may be used by a functional entity as an opt-out of compliance set forth in the standards or a corrective action plan.[11] To mitigate the concern, the Commission directed NERC to work with Commission staff and submit a data collection and assessment plan that contains information related to GO constraint declarations and explanations thereof.[12]

~~This information is critical for the Balancing Authority to make informed decisions regarding the operation of the power grid during cold weather events. The operating parameters of a generating unit can change over time due to various factors. These changes can impact the generator's ability to operate effectively during cold weather conditions. By reviewing and updating the declaration annually, the GO can ensure that the declaration reflects any changes made since the last review.~~
The SDT developed R8 to require the GO to perform an annual review and update any constraint declarations as needed. Updated constraint declarations would also require an update to the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003 and IRO-010.

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[10] FERC Order, 182 FERC ¶ 61,094 at P 64.

[11] Id. At P 66.

[12] See id at PP 11, 68, 94-95.

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NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

UPDATED

Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Formal Comment Period Open through November 30, 2023

Now Available

A 35-day formal comment period for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2,** is open through **8 p.m. Eastern, Thursday, November 30, 2023** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations*updated
  *Requirement R3 was updated to correct error in date to align with previous posting of EOP-012-2
- Implementation Plan

The standard drafting team's considerations of the responses received from the previous comment period are reflected in this draft of the standard.

Reminder Regarding Corporate RBB Memberships

Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact ballotadmin@nerc.net to assist with the removal of any duplicate registrations.

Commenting

Use the Standards Balloting and Commenting System (SBS) to submit comments. An unofficial Word version of the comment form is posted on the project page.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*

- *Please be mindful of ballot and comment period closing dates. We ask to* ***allow at least 48 hours*** *for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts* ***prior to the last day*** *of a comment/ballot period.*

Next Steps

Additional ballots for the standard and implementation plan, and non-binding poll of the associated Violation Risk Factors and Violation Severity Levels, will be conducted **November 21 – 30, 2023**.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination observer list” in the Description Box.

North American Electric Reliability Corporation
3353 Peachtree Rd, NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

Comment Report

Project Name:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination - Phase 2 | Draft 2 EOP-012-2
Comment Period Start Date:	10/27/2023
Comment Period End Date:	11/30/2023
Associated Ballots:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll AB 2 NB 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 AB 2 ST 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 AB 2 OT

There were 71 sets of responses, including comments from approximately 167 different people from approximately 113 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition to utilize "good utility practice" which has a common understanding as used in the pro forma OATT as approved by FERC. Good utility practice encompasses the three examples previously proposed and additional context is provided in the Technical Rationale. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

2. Based upon industry comments received, the SDT has re-structured R2 to require generating units to either implement appropriate freeze protection measures or develop a CAP. Do you agree that the revised language provides sufficient clarity? If not, please provide suggested clarifying language.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

3. In order to meet the FERC directive and reduce reliability risks more quickly, the SDT added new Requirement R7 Part 7.1.3 *"For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units."* Do you agree with this proposed language? If you do not agree, please provide your recommended language.

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4. Do you agree that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority thereby providing the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical, or procedural justification.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.do

5. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. Do you agree with this proposed timeframe? If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

6. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

7. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
BC Hydro and Power Authority	Adrian Andreoiu	1	WECC	BC Hydro	Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
MRO	Anna Martinson	1,2,3,4,5,6	MRO	MRO Group	Shonda McCain	Omaha Public Power District (OPPD)	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
					Jay Sethi	Manitoba Hydro (MH)	1,3,5,6	MRO
					Jaimin Patal	Saskatchewan Power Corporation (SPC)	1	MRO
					Kimberly Bentley	Western Area Power Adminstration	1,6	MRO
					Marc Gomez	Southwestern Power Administration (SWPA)	1	MRO
					Fred Meyer	Algonquin Power Co.	3	MRO
					George Brown	Pattern Operators LP	5	MRO
					Larry Heckert	Alliant Energy (ALTE)	4	MRO
					Terry Harbour	MidAmerican Energy Company (MEC)	1,3	MRO
					Bryan Sherrow	Board Of Public Utilities (BPU)	1	MRO
					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO

					Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Michael Ayotte	ITC Holdings	1	MRO
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF
					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
Dane Rogers	Dane Rogers			OG&E	Terri Pyle	OGE Energy - Oklahoma Gas and Electric Co.	1	MRO
					Donald Hargrove	OGE Energy - Oklahoma Gas and Electric Co.	3	MRO
					Patrick Wells	OGE Energy - Oklahoma Gas and Electric Co.	5	MRO
					Ashley F Stringer	OGE Energy - Oklahoma Gas and Electric Co.	6	MRO
ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Kris Carper	Arizona Electric Power Cooperative, Inc.	1	WECC
					Scott Berry	Wabash Valley Power Association	3,4	RF
					Nikki Carson-Marquis	Minnkota Power Cooperative, Inc.	1	MRO
					Scott Berry	Wabash Valley Power Association	3,4	RF

					Bill Pezalla	Old Dominion Electric Cooperative	3,4	SERC
					Scott Brame	North Carolina Electric Membership Corporation	3,4,5	SERC
					Teresa Czyz	Oglethorpe Power Corporation	5,6	SERC
					Kylee Kropp	Sunflower Electric Power Corporation	1	MRO
					Jordan Mcclellan	Southern Illinois Power Cooperative	1	SERC
Entergy	Julie Hall	6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC
Electric Reliability Council of Texas, Inc.	Kennedy Meier	2		ISO/RTO Council Standards Review Committee (SRC)	Bobbi Welch	Midcontinent ISO, Inc.	2	NA - Not Applicable
					Darcy O'Connell	California ISO	2	WECC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Kennedy Meier	Electric Reliability Council of Texas, Inc.	2	Texas RE
					Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	NA - Not Applicable
					Thomas Foster	PJM Interconnection, L.L.C.	2	RF
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF

					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy-FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Southern Company - Southern Company Services, Inc.	Pamela Hunter	1,3,5,6	SERC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					Leslie Burke	Southern Company - Southern Company Generation	5	SERC
Public Utility District No. 1 of Chelan County	Rebecca Zahler	5		CHPD Voters	Joyce Gundry	Public Utility District No. 1 of Chelan County	3	WECC
					Anne Kronshage	Public Utility District No. 1 of Chelan County	6	WECC
					Diane E Landry	Public Utility District No. 1 of Chelan County	1	WECC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC
					Jeffrey Streifling	NB Power Corporation	1	NPCC

Michele Tondalo	United Illuminating Co.	1	NPCC
Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
Randy Buswell	Vermont Electric Power Company	1	NPCC
James Grant	NYISO	2	NPCC
John Pearson	ISO New England, Inc.	2	NPCC
Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
Randy MacDonald	New Brunswick Power Corporation	2	NPCC
Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
David Burke	Orange and Rockland	3	NPCC
Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
Salvatore Spagnolo	New York Power Authority	1	NPCC
Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
David Kwan	Ontario Power Generation	4	NPCC
Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
Glen Smith	Entergy Services	4	NPCC
Sean Cavote	PSEG	4	NPCC
Jason Chandler	Con Edison	5	NPCC

					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					Joshua London	Eversource Energy	1	NPCC
Dominion - Dominion Resources, Inc.	Sean Bodkin	6		Dominion	Connie Lowe	Dominion - Dominion Resources, Inc.	3	NA - Not Applicable
					Lou Oberski	Dominion - Dominion Resources, Inc.	5	NA - Not Applicable
					Larry Nash	Dominion - Dominion Virginia Power	1	NA - Not Applicable
					Rachel Snead	Dominion - Dominion Resources, Inc.	5	NA - Not Applicable
Stephen Whaite	Stephen Whaite		RF	ReliabilityFirst Ballot Body Member and Proxies	Lindsey Mannion	ReliabilityFirst	10	RF
					Stephen Whaite	ReliabilityFirst	10	RF
Western Electricity Coordinating Council	Steven Rueckert	10		WECC Entity Monitoring	Steve Rueckert	WECC	10	WECC
					Phil O'Donnell	WECC	10	WECC
Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC
					Foung Mua	Sacramento Municipal Utility District	4	WECC

					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition to utilize "good utility practice" which has a common understanding as used in the pro forma OATT as approved by FERC. Good utility practice encompasses the three examples previously proposed and additional context is provided in the Technical Rationale. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

Avista does not support the use of the phrase "good utility practice" because it is not clear or auditable.   Avista further notes that the phrase "good utility practice" is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard. Additionally, the inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance."

Regarding auditability, the vagueness of terms included in the definition of "good utility practice" such as "significant portion" and "reasonable cost" allow for a broad range of interpretations regarding what may or may not constitute "good utility practice".

We recommend that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

The Good Utility Practice (GUP) criterion of EOP-012-2 may at times be non-auditable because the, “methods and acts engaged in or approved by a significant portion,” of GO/GOPs in deregulated areas often derive from market forces and can therefore differ from the approach appropriate for achieving NERC’s BES reliability goals.

It has been reported for example that many wind farm owners in warm parts of the country declined OEMs’ standard winterization options because doing so achieved their “desired result” (profit maximization) in a fashion consistent with their concept of reliability (achieving just a few extra hours of operation wasn’t worth the cost). This meets the GUP definition, forcing NERC to apply an ex post facto “Bad GUP” classification.

The same negative outlook ought to apply for the widespread under-designing of heat tracing and insulation systems in the deregulation era; but, as discussed later in these comments, NERC has chosen to enshrine this as “Good GUP.”

Unpredictable Good GUP vs Bad GUP divergences are therefore already occurring, and more of the same can be expected. Can an emerging winter reliability technology that gains substantial acceptance overseas be deemed Not-GUP for North America simply because prospective users here refuse to adopt it? Any public policy goals wanted by NERC need to be spelled-out, rather than assuming that they will automatically coincide with the path taken by an industry under the lash of economic competition.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

See comments submitted by the Edison Electric Institute for Duke Energy’s official response.

Likes 0	
Dislikes 0	

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	No
Document Name	

Comment

MRO NSRF does not agree that the use of “good utility practice” provides sufficient clarity or is auditable and contends that the phrase is unsuitable for use in a reliability standard as currently proposed. The phrase “good utility practice” is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on impact to this reliability standard. Additionally, inclusion of this term runs contrary to NERC Rules of Procedure Section 302.6 which states *“Reliability Standards shall be complete and self-contained. The Reliability Standards shall not* *depend on external information to determine the required level of performance."* This is also an important consideration for Canadian entities that fall outside of FERC jurisdiction. These entities would need to create their own definition of the term and this could create confusion for auditors with different meanings in different jurisdictions.

Regarding auditability, the vagueness of terms included in the definition of "good utility practice" such as "significant portion" and "reasonable cost" allow for a broad range of interpretations of what may or may not constitute "good utility practice". MRO NSRF appreciates the Standard Drafting Team's efforts on this subject; however, MRO NSRF recommends that the Standard Drafting Team either revert to the language in EOP-012-1 which was in line with NERC rules of procedure and approved by the Registered Ballot Body and NERC Board of Trustees or revert to the proposed definition for Generator Cold Weather Constraint as defined in Phase 2, Draft 1 of EOP-012-2 with the updated language as proposed below and incorporate the currently proposed reference to "good utility practice" in the technical rationale.

Generator Cold Weather Constraint(s) – A limitation**, as determined by the applicable entity,** that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas:

Technical Constraint – A technical constraint exists when there is no known **proven** technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications.

Commercial Constraint - A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation.

Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments.

Utility practice is specific to each utility geographical location. Good utility practice is a matter of perception, therefore it's vagueness in respect to this very fluid standard cannot be accurately audited beyond a reasonable doubt. Will "Good enough" receive the seal of approval from the auditors, based on existing practices, if the generating unit has operated from 2000 onward, through the Extreme Cold Weather Temperature without a Generator Cold Weather Reliability Event?

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	No
Document Name	

Comment

Although the concept of good utility practice to replace the 3 constraints originally proposed is more appropriate and relevant to use, NRG still believes that the terminology is too generic and open, thus making it too ambiguous and subjective for auditing purposes. However, Inclusion of the examples in the Technical Rationale document does provide better guidance for determination of what may be considered in scope.

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

We do not support the use of the phrase “good utility practice” because it is not clear or auditable. We further note that the phrase “good utility practice” is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard. Additionally, the inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.”

Regarding auditability, the vagueness of terms included in the definition of “good utility practice” such as “significant portion” and “reasonable cost” allow for a broad range of interpretations regarding what may or may not constitute “good utility practice”.

We recommend that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process.

Likes 0	
Dislikes 0	

Response

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	No
Document Name	

Comment

Although the concept of good utility practice to replace the 3 constraints originally proposed is more appropriate and relevant to use, NRG still believes that the terminology is too generic and open, thus making it too ambiguous and subjective for auditing purposes. However, inclusion of the examples in the Technical Rationale document does provide better guidance for determination of what may be considered in scope.

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

: Avista does not support the use of the phrase “good utility practice” because it is not clear or auditable. Avista further notes that the phrase “good utility practice” is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard. Additionally, the inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.”

Regarding auditability, the vagueness of terms included in the definition of “good utility practice” such as “significant portion” and “reasonable cost” allow for a broad range of interpretations regarding what may or may not constitute “good utility practice”.

We recommend that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process.

Likes 0	
Dislikes 0	

Response

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

NO. We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	
Michael Whitney - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	
Answer	No
Document Name	
Comment	

The term "auditable" in the question is concerning. The suggested "good utility practice" language lacks clarity on when freeze protection is justified. I recommend the SDT include more specific language in the standard to guide utilities in decision-making and documentation needed to thoroughly respond to audits.	
Likes 0	
Dislikes 0	
Response	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We do not support the use of the phrase “good utility practice” because it is not clear or auditable	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No
Document Name	
Comment	
We do not support the use of the phrase “good utility practice” because it is not clear or auditable	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	No
Document Name	
Comment	

The use of "good utility practice" is too vague and leaves room for the auditor and the entity to disagree on what is a resonable constraint. Recommend putting in the three constraints from the previous draft back in and defining them.

Likes 0	
Dislikes 0	

Response

Daniel Gacek - Exelon - 1

Answer	No
Document Name	

Comment

Exelon supports the comments submitted by the EEI.

Likes 0	
Dislikes 0	

Response

Kinte Whitehead - Exelon - 3

Answer	No
Document Name	

Comment

Exelon is supporting EEI response to this question.

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer	No
Document Name	

Comment

Tri-State does not agree with the term "good utility practice" as it does not provide clarity and would not be auditable. The term "good utility practice" is broad and will bring many different iterpretations. Tri-State recommends reverting back to the original language:

PREVIOUS DEFINITION:

Generator Cold Weather Constraint - A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas:

• Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES.

• Commercial Constraint – A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation.

• Operational Constraint – An operational constraint exists when implementation of selected freezeprotection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

Likes 0	
Dislikes 0	

Response

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike

Answer	No
Document Name	

Comment

Tacoma Power supports the MRO NSRF comments.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Allete - Minnesota Power, Inc. - 1

Answer	No
Document Name	

Comment

Minnesota Power supports MRO’s NERC Standards Review Forum’s (NSRF) comments.

Likes 0	
Dislikes 0	

Response

Helen Lainis - Independent Electricity System Operator - 2

Answer	No
Document Name	

Comment

The 3 examples and the context in the Technical Rationale sets a tighter set of criteria. When filing for regulatory approval, we strongly recommend that NERC request FERC to explicitly review of the Technical Rationale examples and whether this boundary set around "good utility practice' is stringent enough to avoid from having generators opt out of freeze protection measures.

Likes 0	
Dislikes 0	

Response

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion

Answer	No
Document Name	

Comment

Dominion Energy supports EEI comments and is firmly of the opinion that good utility practice should be defined in the Standard rather than in the technical rationale, which carries no weight when compliance is being evaluated.

Dominion Energy is of the opinion that to ensure this definition is adhered to by NERC and regional auditors, it should be specifically referenced in the Reliability Standard, possibly by simply adding “…using good utility practice, as defined in the FERC *pro forma* OATT,…” to the current definition.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC has signed on to ACES comments:

We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however we have grave concerns with the use of the phrase “good utility practice” in the definition of “Generator Cold Weather Constraint”. While the term may have a common understanding, this does not automatically mean it is suitable for inclusion in a NERC Reliability Standard. It is our opinion that this newly introduced language is fraught with compliance concerns.
Firstly, it is our opinion that there are several undefined terms and phrases within the term “good utility practice” that are not auditable without further definition and clarification. For instance,
please see the following list and our concern with each:
•
“engaged in or approved by a significant portion”
o
What portion of the electric utility industry is to be considered significant?
o
Which entity will be responsible for determining which practices, methods, and activities the industry is engaged in?
o
Which entity will be responsible for determining which practices, methods, and activities are approved by the industry and how will this approval be obtained?
•
“relevant time period”
o
What time period is considered relevant to Generator Cold Weather Constraints?
•
“reasonable judgment” and “reasonable cost”
o
Use of the phrase “reasonable” may have precedent in a court of law; however, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME’s may not be, nor are expected to be, lawyers. Thus, additional clarity is needed to determine what should be or should not be considered reasonable.

•
“consistent with good business practices, reliability, safety and expedition”
o
Which entity will be responsible for determining which business practices are “good”?
o
Is not the intent of the NERC Reliability Standards to increase reliability across the industry? If so, it seems more than a bit strange to include a stipulation that an entity may have a constraint that would preclude their compliance with a Reliability Standard Requirement because doing so would not be consistent with reliability.
•
“generally accepted in the region”
o
Which entity will be responsible for objectively determining the various

“regions” and in which “region” a given generating station is located?

▪

For example, should region be defined as the Reliability Coordinator Area or the Balancing Authority Area? If so, this would ignore the potentially large variability in both climate and Extreme Cold Weather conditions throughout both areas.

▪

Perhaps it would be more appropriate to define region as a given geographical area? However, this approach presents new and completely different challenges.

•

Weather can often be quite distinct even when considering two locations in close proximity to one another. For example, the various “snowbelts” in the United States and Canada that receive copious amounts of “lake effect” snow each year.

Lastly, in general, we disagree with the use of any defined term within a Reliability Standard that is not defined by NERC and is not included in the NERC Glossary of Terms. In this specific instance, what will the compliance implications be if FERC chooses to modify the definition of “good utility practice” in a future revision of the pro forma OATT?

ACES recommends that the SDT instead work to refine the previous definition of “Generator Cold Weather Constraint” by taking into further consideration prior industry comments on the previously proposed definition. We recommend utilizing language similar to the following:

Generator Cold Weather Constraint(s) – A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components. A constraint must fall under one of the following areas:

•

Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technologies, or existing technologies in new applications, that would facilitate operations outside of the existing equipment specifications.

•

Commercial Constraint - A commercial constraint exists when implementation of suitable freeze protection measures is uneconomical to the extent that it would impact the availability or operational tempo of the generating unit(s).

•

Operational Constraint – An operational constraint exists when implementation of suitable freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE support the SRC Comments:

ISO reiterates the SRC belief that the use of “good utility practice” along with the examples given in the Technical Rationale is not sufficient.

ISO-NE agrees that any declared constraints **shall** be reported to NERC and/or the Regional Entity for purposes of compiling a best practices document, such as a new Reliability Guideline.

Likes 0	
Dislikes 0	

Response

Andrew Smith - APS - Arizona Public Service Co. - 5

Answer	No
Document Name	

Comment

AZPS does not agree with using “good utility practice” without it being defined in the Reliability Standard. AZPS supports EEI’s comment to include the definition in the Reliability Standard so the Standard will not depend on an external definition.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	No
Document Name	

Comment

Utility practice is specific to each utility geographical location. Good utility practice is a matter of perception, therefore it's vagueness in respect to this very fluid standard cannot be accurately audited beyond a reasonable doubt. Will "Good enough" receive the seal of approval from the auditors, based on existing practices, if the generating unit has operated from 2000 onward, through the Extreme Cold Weather Temperature without a Generator Cold Weather Reliability Event?

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with utilizing the term "good utility practice" as it is not currently defined in the Standard. "Good utility practice" is a defined phrase within the pro forma Open Access Transmission Tariff (I.1.15) and is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard(s). In addition, the use of this term is contrary to NERC Rules of Procedure Section 300.6 which state "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance".

If the definition from Open Access Transmission Tariff is added to the Standard, the vagueness of terms included in the definition (i.e. "significant portion" and "reasonable cost") will make auditing difficult and allow for a broad range of interpretations.

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with utilizing the term "good utility practice" as it is not currently defined in the Standard. "Good utility practice" is a defined phrase within the pro forma Open Access Transmission Tariff (I.1.15) and is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard(s). In addition, the use of this term is contrary to NERC Rules of Procedure Section 300.6 which state "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance."

If the definition from Open Access Transmission Tariff is added to the Standard, the vagueness of terms included in the definition (i.e. “significant portion” and “reasonable cost”) will make auditing difficult and allow for a broad range of interpretations.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with utilizing the term “good utility practice” as it is not currently defined in the Standard. “Good utility practice” is a defined phrase within the pro forma Open Access Transmission Tariff (I.1.15) and is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard(s). In addition, the use of this term is contrary to NERC Rules of Procedure Section 300.6 which state “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.”

If the definition from Open Access Transmission Tariff is added to the Standard, the vagueness of terms included in the definition (i.e. “significant portion” and “reasonable cost”) will make auditing difficult and allow for a broad range of interpretations.

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however we have grave concerns with the use of the phrase “good utility practice” in the definition of “Generator Cold Weather Constraint”. While the term may have a common understanding, this does not automatically mean it is suitable for inclusion in a NERC Reliability Standard. It is our opinion that this newly introduced language is fraught with compliance concerns.

Firstly, it is our opinion that there are several undefined terms and phrases within the term “good utility practice” that are not auditable without further definition and clarification. For instance, please see the following list and our concern with each:

- “engaged in or approved by a significant portion”
    - What portion of the electric utility industry is to be considered significant?
    - Which entity will be responsible for determining which practices, methods, and activities the industry is engaged in?

    - Which entity will be responsible for determining which practices, methods, and activities are approved by the industry and how will this approval be obtained?
- “relevant time period”
    - What time period is considered relevant to Generator Cold Weather Constraints?
- “reasonable judgment” and “reasonable cost”
    - Use of the phrase “reasonable” may have precedent in a court of law; however, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME’s may not be, nor are expected to be, lawyers. Thus, additional clarity is needed to determine what should be or should not be considered reasonable.
- “consistent with good business practices, reliability, safety and expedition”
    - Which entity will be responsible for determining which business practices are “good”?
    - Is not the intent of the NERC Reliability Standards to increase reliability across the industry? If so, it seems more than a bit strange to include a stipulation that an entity may have a constraint that would preclude their compliance with a Reliability Standard Requirement because doing so would not be consistent with reliability.
- “generally accepted in the region”
    - Which entity will be responsible for objectively determining the various “regions” and in which “region” a given generating station is located?
        - For example, should region be defined as the Reliability Coordinator Area or the Balancing Authority Area? If so, this would ignore the potentially large variability in both climate and Extreme Cold Weather conditions throughout both areas.
        - Perhaps it would be more appropriate to define region as a given geographical area? However, this approach presents new and completely different challenges.
            - Weather can often be quite distinct even when considering two locations in close proximity to one another. For example, the various “snowbelts” in the United States and Canada that receive copious amounts of “lake effect” snow each year.

Lastly, in general, we disagree with the use of any defined term within a Reliability Standard that is not defined by NERC and is not included in the NERC Glossary of Terms. In this specific instance, what will the compliance implications be if FERC chooses to modify the definition of “good utility practice” in a future revision of the pro forma OATT?

ACES recommends that the SDT instead work to refine the previous definition of “Generator Cold Weather Constraint” by taking into further consideration prior industry comments on the previously proposed definition. We recommend utilizing language similar to the following:

Generator Cold Weather Constraint(s) – A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components. A constraint must fall under one of the following areas:

- Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technologies, or existing technologies in new applications, that would facilitate operations outside of the existing equipment specifications.
- Commercial Constraint - A commercial constraint exists when implementation of suitable freeze protection measures is uneconomical to the extent that it would impact the availability or operational tempo of the generating unit(s).
- Operational Constraint – An operational constraint exists when implementation of suitable freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	No

Document Name	
Comment	

NV Energy does not agree that the use of “good utility practice” provides sufficient clarity or is auditable and contends that the phrase is unsuitable for use in a reliability standard as currently proposed. The phrase “good utility practice” is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on impact to this reliability standard. Additionally, inclusion of this term runs contrary to NERC Rules of Procedure Section 300.6 which states “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.” Regarding auditability, the vagueness of terms included in the definition of “good utility practice” such as “significant portion” and “reasonable cost” allow for a broad range of interpretations of what may or may not constitute “good utility practice”. NV Energy appreciates the Standard Drafting Team’s efforts on this subject; however, NV Energy recommends that the Standard Drafting Team revert to the language in EOP-012-1 which was in line with NERC rules of procedure and approved by the Registered Ballot Body and NERC Board of Trustees.

Likes 0	
Dislikes 0	
Response	

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	
Comment	

AES Clean Energy does not support the use of the phrase “good utility practice” and is concerned that the term is not auditable and will lead to interpretation issues by CEA. After consulting with internal legal team on how the term is used by FERC, AES Clean Energy has learned that the term has a common usage applicable to transmission and is not commonly used in the context of generation in FERC pro-forma OATT.

Additionally, the Technical Rationale refers to the FERC OATT definition for the phrase “good utility practice”. As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard. The inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states “*Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.*”

AES Clean Energy recommends that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process.

On any new definition that the Standard Drafting Team will be developing, AES Clean Energy also recommends that the drafting team develop a guidance document to ensure that there is consistent interpretation across the ERO on meaning of the definition.

Likes 0	
Dislikes 0	
Response	

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The ISO/RTO Council (IRC) Standards Review Committee (SRC) (consisting, for purposes of these comments, of CAISO, ERCOT, PJM, MISO, NYISO, and SPP) does not believe that the use of the phrase "good utility practice" in the definition combined with the examples given in the Technical Rationale provides sufficient clarity. While the SRC agrees that most of the examples provided in the Technical Rationale are reasonable, the SRC believes that "accelerated retirement of an existing generating unit" is insufficiently auditable and should be revised to "documented notice of planned retirement of an existing generating unit." In addition, the last example, "technology not utilized by a significant portion of the electric utility industry," is ambiguous and runs counter to the purposes of EOP-012 and should therefore be removed. It is ambiguous because it does not define what would constitute "a significant portion" of the industry. It runs counter to the purpose of EOP-012 because EOP-012 is designed to ensure proper weatherization of generating units, including the use of new weatherization technologies and approaches that may be fully effective despite being too new to have been adopted by a significant portion of the industry. Alternatively, if the intent is to provide a means to declare a constraint for unproven technologies, then the SRC suggests the last bullet be revised to read as follows:

- Unavailability of technology that provides effective freeze protection.

Furthermore, the SRC is concerned that "good utility practice" as defined in the technical rationale, although used in other contexts, is poorly suited for use in determining what constitutes a valid Generator Cold Weather Constraint. Specifically, the definition that the technical rationale uses is limited to what can be accomplished "at a reasonable cost" without any guidance as to what constitutes a reasonable cost. This omission means that a unit owner could effectively self-certify that installation of weatherization measures would be unreasonably costly, which would provide little in the way of consistency among unit owners and could allow resource owners to prioritize competitive concerns over reliability. The fact that the Winter Storm Elliott report notes that over 75% of generators that failed to start or experienced derates or outages due to freezing issues during the storm did so at temperatures above their documented design temperatures provides further cause for concern that competitive concerns may be prioritized over reliability in determining whether the cost of weatherization is reasonable.{C}[1] Therefore, the SRC recommends that the concept of "good utility practice" be removed from the definition of a Generator Cold Weather Constraint and from the technical rationale while retaining the list of example constraints in the technical rationale. The SRC proposes that the definition be revised to read as follows:

Any condition that would preclude a Generator Owner from implementing freeze protection measures ***based on the Extreme Cold Weather Temperature (ECWT)*** *on one or more Generator Cold Weather Critical Components* ***due to circumstances beyond the control of the Generator Owner or based on verifiable circumstances limiting the ability to implement freeze protection measures for the generating unit(s). Before declaring a constraint, the GO shall use best efforts to, at a minimum, winterize the generating unit(s) to its documented cold weather operating temperature. Any such declared constraints shall be reported to NERC and/or the Regional Entity for purposes of compiling a best practices document, such as a new Reliability Guideline or Compliance Guidance.***

{C}[1] https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022, p. 19.

Likes 0	
Dislikes 0	

Response

Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro

Answer	No
Document Name	
Comment	

BC Hydro appreciates the drafting team's efforts and opportunity to comment, and offers the following.

BC Hydro contends that the use of "good utility practice" does not provide sufficient clarity for a consistent implementation across the industry and may pose regulatory issues. Wording used in the good utility practice OATT definition such as "significant portion" or "reasonable cost" do not constitute a robust measure for regulatory compliance. Also, a change of the current "good utility practice" definition can happen outside of the Standards revisions procedures, and therefore may lead to unintended consequences in the compliance monitoring (including audits) and enforcement processes.

BC Hydro recommends that "using good utility practice" wording in the proposed definition be replaced with "as determined and documented by the applicable entity" as follows:

Generator Cold Weather Constraint – any condition, as determined and documented by the applicable entity, that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components.

Likes 0	
Dislikes 0	
Response	

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	Yes
Document Name	
Comment	

"Good utility practice" is better than the three examples. We suggest that the additional context provided in the Technical Rationale should be provided in the definition as a footnote.

Likes 0	
Dislikes 0	
Response	

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	
Comment	

FirstEnergy supports EEI’s comments which state: EEI supports the use of “good utility practice” but recommends the phrase “good utility practice” be defined in the Reliability Standard using the approved FERC pro forma Open Access Transmission Tariff (I.1.15) definition of “good utility practice”. Including the definition in the Reliability Standard aligns with the NERC Rules of Procedure Section 300.6 which states “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.”	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports the comments submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM & TNMP support EEI’s comments related to location of the good utility practice definition being integrated into the EOP-012-2 Standard.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes

Document Name	

Comment

OG&E supports comments submitted by EEI.

Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	Yes
Document Name	

Comment

WECC supports the proposed Reliability Standard but makes the following comments related to auditability for the SDT's consideration.

Phrases that have a common understanding in the industry often get misunderstood when evaluating compliance. The particular phrase “good utility practice” allows for the use of “reasonable judgment” to be utilized. From an auditing perspective, the auditor’s professional judgement and professional skepticism would focus on how a utility considered the constraint under the guise of good utility practice. Questions may focus on how an entity developed information to consider the labeling of a constraint. Effectively, an egregious issue will have to be present to call the issue a potential noncompliance. WECC agrees with the SDT making the following statement: “Ultimately, it will be the GO’s responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented.” If the “good utility practice” language remains, WECC would encourage GOs to sufficiently document the facts associated with calling out a Generator Cold Weather Constraint.

It is not clear if a Generator Cold Weather Constraint is required to be called for the issues noted in R1, R2, R3, and/or R6. Certainly, a CAP is required in the referenced Requirements but R7 only requires a Generator Cold Weather Constraint to be **declared** IF “actions” within a CAP can not be implemented. So, a CAP could be written that may take 24 to 48 months without ever having a declaration and BAs, RCs, GOPs, and TOPs may never know as there is no requirement to inform the entities. Requirement 1 only requires a “once every five calendar year” review. Be clear on the expectations by writing those into the Requirements. Effective reliability (and compliance monitoring) will be more difficult without more explicitness in the language.

The definition of Generator Cold Weather Constraint appears to be significantly broad. While flexibility is a good attribute should the definition be more limiting in terms of “technical” limitations. That may limit reasons that stretch justifications.

As written, the definition of Generator Cold Weather Constraint excludes Generator Operators who may very well be implement all or parts of the cold weather preparedness plans (and may be involved in training for the cold weather preparedness plan which should explain the constraint conditions.) The SDT should consider adding Generator Operator to the definition as follows: “Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner or Generator Operator, using good utility practice, from implementing freeze protection measures on one or more Generator Cold Weather Critical Components.” If a Generator Operator is implementing freeze protection measures and cannot do so for some reason, as is, no Generator Cold Weather Constraint may be called. To avoid a major re-writes the GOP should be required to inform the GO if implementation becomes an issue.

Likes 0	
Dislikes 0	

Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	

Constellation has no additional comments.

Kimberly Turco on behalf of constellation segments 5 and 6

Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	

Constellation has no additional comments.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	

PG&E agrees the revised definition provides sufficient clarity.

Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	

The utilization of the term "good utility practice" is adequate and provides the proper criteria to allow for the regional and generation technology differences. The term encompasses a reasonableness approach and does not mandate a one-size fits all approach. Southern does agree with EEI in that **defining** the term in the standard is preferred to align with the NERC Rules of Procedure Section 302.6.

Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	

While there is still a significant amount of interpretation allowed here, it provides sufficient guidance to the Generator Owners to allow for clear expectations. There is some concern related to the level of expertise needed by an auditor to be able to reasonably enforce this language, as well as a potential for significant differences between the enforcement from one region to another. However, these issues should be addressed by NERC and the regions through their processes, without trying to create more stringent guidelines through the enforcement process.

With this said, the NAGF does not believe that the standard is currently auditable as structured. The use of "good utility practice" does not provide sufficient clarity nor is it auditable and contends the phrase is unsuitable for use in a reliability standard as currently proposed. The phrase "good utility practice" is not based on common understanding or general industry use, it is an explicitly defined phrase within the *pro forma* Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on impact to this reliability standard. Additionally, inclusion of this term without defining it runs contrary to NERC Rules of Procedure Section 302.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance."

There is also some concern that even if NERC defines the term "good utility practice", it will still require generators to invest in freeze protection measures to increase reliability without the ability to recoup the costs of the investment. The drafting team must provide some support beyond the use of the term "good utility practice" that NERC is not expecting generators to invest in freeze protection measures that are more costly than any expected payback.

To address this issue, the SDT needs to define the term in the NERC Glossary to ensure that the definition is static for the purposes of compliance, clearly addresses the concerns related to costly investments without payback and ensures that changes to the definition goes through the standard drafting process.

Likes 0	
Dislikes 0	

Response

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer	Yes
Document Name	

Comment

EEI supports the use of "good utility practice" but recommends the phrase "good utility practice" be defined in the Reliability Standard using the approved FERC pro forma Open Access Transmission Tariff (I.1.15) definition of "good utility practice". Including the definition in the Reliability Standard aligns with the NERC Rules of Procedure Section 302.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance."

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	Yes
Document Name	

Comment

Ameren supports NAGF's comments on this project.

Likes 0	
Dislikes 0	

Response

Rhonda Jones - Invenergy LLC - 5,6

Answer	Yes
Document Name	

Comment

Consider adding a "Good Utility Practice" defintion to the NERC Glossary of Terms.

Likes 0	
Dislikes 0	

Response

Colin Chilcoat - Invenergy LLC - 6

Answer	Yes
Document Name	

Comment

Consider defining “good utility practice” within the NERC Glossary of Terms or within EOP-012-2.

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	Yes
Document Name	

Comment

Enel agrees with the SDT’s revisions to the definition of Generator Cold Weather Constraint to remove the previously defined constraint types and incorporation of “good utility practice”. However, Enel recommends the SDT incorporate “Good Utility Practice” within the NERC Glossary of Terms Used in Reliability Standards for several reasons.

First, pursuant to the NERC Rules of Procedures Section 306.2 “Completeness – Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.” The pro forma OATT is an external document and cannot be used to establish a definition. As this definition is not found within the NERC Glossary of Terms, it is not subject to the NERC Standard Processes Manual, Section 5.0: Process for Developing a Defined Term.

Additionally, the reference to the definition of “good utility practice” is only found in the Technical As stated within the introduction of the Technical Rationale “(t)his Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.”

Lastly, the referenced definition of “good utility practice” is not enforceable to Canadian entities where NERC Reliability Standards and the Glossary of Terms Used in Reliability Standards are adopted.

Likes 0	
Dislikes 0	

Response
Thomas Foltz - AEP - 5

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response
Julie Hall - Entergy - 6, Group Name Entergy

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response
Ben Hammer - Western Area Power Administration - 1,6

Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	

Document Name	

Comment

Texas RE appreciates the drafting's ongoing efforts with this project. In general, Texas RE agrees with the proposed definition of Generator Cold Weather Constraint. Texas RE recommends, however, requiring the GOs to document the circumstances and reasons why the modification needed to address Extreme Cold Weather Temperature (ECWT) issues are not implemented in the declaration. This could be done in requirement part 7.4:

7.4 Document in a declaration the circumstances and reasons why the modification(s) needed to address the required operational capability was not implemented, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.

Additionally, Texas RE suggests that the documented plan needs to be submitted to the BA or RC. Texas RE recommends the following additional requirement part:

7.5 Provide the documented Corrective Action Plan and declaration (7.1 - 7.4) to the Balancing Authority or Reliability Coordinator annually. If there are no changes to the previously submitted documentation, GOs shall notify the Balancing Authority or Reliability Coordinator stating no changes made since the previous submission.

Likes 0	
Dislikes 0	

Response

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

2. Based upon industry comments received, the SDT has re-structured R2 to require generating units to either implement appropriate freeze protection measures or develop a CAP. Do you agree that the revised language provides sufficient clarity? If not, please provide suggested clarifying language.

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC believes that it is unnecessary and counter to the purpose of EOP-012 to include a CAP option in Requirement R2. Requirement R2 applies to generating units with a commercial operation date on or after October 1, 2027, which is almost four years from the present date. Most units that will have a commercial operation date on or after October 1, 2027, have not yet been designed and constructed, and therefore should be designed and constructed to be able to operate at the Extreme Cold Weather Temperature from the date they achieve commercial operations. Furthermore, generating units that are already in the design or construction phase have had ample notice of the requirements being proposed in EOP-012, which further reduces the need for a CAP option in Requirement R2. Any need to accommodate units that are presently under construction and will not begin commercial operations before October 1, 2027 should be addressed in the implementation plan for EOP-012, not through the creation of an unnecessary CAP option in the standard itself.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with the requirement of ensuring that components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as this is not achievable based on equipment location. Black Hills Corporation recommends striking the “12 continuous hours” from the second bullet of R2.

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the requirement of ensuring that components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as this is not achievable based on equipment location. Black Hills Corporation recommends striking the “12 continuous hours” from the second bullet of R2.	
Likes 0	
Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the requirement of ensuring that components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as this is not achievable based on equipment location. Black Hills Corporation recommends striking the “12 continuous hours” from the second bullet of R2.	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	
R2 is applicable to generating units with a commercial operation date on or after October 1, 2027. The unit must be placed in service first, before it is considered an applicable facility, to trigger ECWT calculation under R1. The implementation of freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)’ Extreme Cold Weather Temperature, comes afterwards and has no implementation timeframe spelled out in the requirement. Theoretically it can take up to five years to have the Extreme Cold Weather Temperature calculated for the specific unit.	
Likes 0	

Dislikes 0	
Response	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE supports the SRC Comments:	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
Wind speed and time stipulations should not be included. There should not be arbitrary guidance forcing actions in this section. Stations perform their due diligence via walkdowns. Recommend similar 'good utility practice' verbiage in this section.	
Likes 0	
Dislikes 0	
Response	
Helen Lainis - Independent Electricity System Operator - 2	
Answer	No
Document Name	
Comment	
Please confirm that when a new unit goes into commercial operation, it must adhere to all NERC reliability standards, including EOP-012.	

Likes 0	
Dislikes 0	
Response	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments.	
Likes 0	
Dislikes 0	
Response	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
N/A to NCPA.	
Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee’s comments.

R2 is applicable to generating units with a commercial operation date on or after October 1, 2027. The unit must be placed in service first, before it is considered an applicable facility, to trigger ECWT calculation under R1. The implementation of freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)’ Extreme Cold Weather Temperature, comes afterwards and has no implementation timeframe spelled out in the requirement. Theoretically it can take up to five years to have the Extreme Cold Weather Temperature calculated for the specific unit.

Likes 0	
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

Specifically for hydraulic generating units, the majority (if not all) generator cold weather critical components will be excluded because they are located inside the powerhouse. Will some type of documentation be required to prove there are no generating cold weather critical components located outside? What happens if a GSU is replaced after October 1, 2027 and it is located outside? Would just the GSU be considered the cold weather critical component of this generating unit? The temperatures specified in R2 (below 32F) is normal operating conditions for our outside equipment. There seems to be a focus on wind speed which makes these requirements hard to apply to hydraulic generators and GSUs. It appears there will be a lot of administration to ensure compliance especially if it is only due to the GSU. Dated evidence could be the control cabinet has been spec’d with a heater? Completed work orders the heater was functionally tested? Cold weather is annual in Manitoba, and this appears to be extra paperwork without improving reliability.

In 2022, the total days with a minimum temperature below 32 degrees Fahrenheit (zero degrees Celsius) are 183 days for our south generating units and 216 days for our north generating units.

Our generating units operate below 32 degrees Fahrenheit (zero degrees Celsius) for more than half a year. Cold weather operation is our normal operation.

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Wendy Kalidass - U.S. Bureau of Reclamation - 5

Answer	No
Document Name	

Comment

Reclamation does not agree with the addition of “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as the addition of multiple variables may or may not affect equipment based on the location of the equipment. There is no guidance or direction on how to utilize this information, i.e. calculations, measurements, etc. Wind speed measurement equipment at hydropower facilities do not exist and it is impossible to predict variants from one hour to the next. This is an undue burden to install new equipment with constant monitoring while no technical rationale that this requirement will increase reliability of equipment operation in cold weather.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

The ECWT plus 20 mph wind is not a suitable design criterion for new plants, because it generally does not cover the generation capacity crises that NERC is trying to address. We have for example some Texas plants with an ECWT of 27 F, which when combined with the 20 mph wind speed of EOP-012-2 R2 yields a wind chill temperature (WCT) of 13.4 F. These facilities experienced during Winter Storm Uri a dry bulb temperature of 17 F with 0 F WCT.   Requirement R2 of EOP-012-2 will establish a common mode failure scenario for Uri-like storms as a continent-wide design criterion, rather than being presently a sometimes-encountered flaw .

As to how this situation came about, the EOP-012-1 Technical Rationale document statement that “design professionals…use a statistical approach,” to set wintertime design temperatures does not give a full picture. Heat tracing, insulation and other generation plant freeze prevention measures are not HVAC systems, because exceeding the design conditions forces plants offline rather than just creating a deviation from the comfort zone.

Designing for worst-historical weather accordingly was GUP back when powerplants were electric utility companies. The far weaker heat tracing/insulation systems resultant from applying HVAC-like statistical temperature cutoffs became widespread only when the generation industry was deregulated. This was ostensibly a cost-benefit optimization measure (market GUP vs public policy GUP once again), but has had disastrous results for grid operators and GO/GOPs alike.

A statistical approach can however lead to reliable designs if applied with due rigor, e.g. using the 50-year recurrence temperature of the dominant authority on the subject, ASHRAE (http://ashrae-meteo.info/v2.0/places.php?continent=North%20America). Their design temperature values look nothing like NERC’s ECWT, however. We have for example a plant with an ECWT of -1 F and ASHRAE recurrence values of -9.7 F for 10 years, -13.4 F for 20 years and -18.3 F for 50 years. The plant was fortunately designed (prior to deregulation) for -25 F/30 mph, but a new plant next door wouldn’t get through a repetition of the 2014 Polar Vortex if designed for -1 F/20 mph.

R2 of the current EOP-012-2 draft should be overhauled from start to finish, working with design professionals from an independent authority such as ASHRAE.

Likes 0	
Dislikes 0	

Response

Ben Hammer - Western Area Power Administration - 1,6

Answer	No
Document Name	

Comment

The requirement of ensuring that the components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” is not achievable. There is no technical rationale provided that the windspeed and duration requirement will affect equipment operation. Also, there is no guidance or direction on how to utilize this information, i.e. calculations, measurements, etc. Wind speed measurement equipment at hydropower facilities do not exist and it is impossible to predict variants from one hour to the next. This is an undue burden to install new equipment with constant monitoring while no technical rationale that this requirement will increase reliability of equipment operation in cold weather.

Likes 0	
Dislikes 0	

Response

Thomas Foltz - AEP - 5

Answer	No
Document Name	

Comment

AEP recommends striking the “12 continuous hours” from the second bullet of R2, as it is unnecessary and incongruent with the obligations for both operating existing generation and new generation. R2 and R3 are not drafted in a way which align with each other, nor with the definition of Cold Weather Event. A CAP is required for a Cold Weather Event, so what exactly does the text regarding a 12 continuous hour obligation contribute?

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	Yes

Document Name	
Comment	
No comment	
Likes 0	
Dislikes 0	
Response	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	Yes
Document Name	
Comment	
Ameren supports NAGF's comments on this project.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI agrees the revised language is clear.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	

Comment	
The NAGF agrees that the revised language clearly expresses what is required of a new unit.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
This change is sufficiently clear on the requirement.	
Likes 0	
Dislikes 0	
Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees with the change to R2 language.	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	

PG&E agrees the revised language provides sufficient clarity.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf of constellation segments 5 and 6

Likes 0	
Dislikes 0	

Response

Kinte Whitehead - Exelon - 3

Answer	Yes
Document Name	

Comment	
Exelon is supporting EEI response to this question.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
The option to declare a constraint should be a subrequirement of R2.	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	

Avista agrees the revised language is clear.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
We agree the revised language is clear.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM & TNMP agrees that the proposed language changes are clear.	

Likes 0

Dislikes 0

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer Yes

Document Name

Comment

FirstEnergy has no objection to this revised language.

Likes 0

Dislikes 0

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer Yes

Document Name

Comment

Yes, MRO NSRF agrees the proposed “either/or” language provides sufficient clarity.

Paragraph 88 directed NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner’s fleet. Such an approach will reduce reliability risks more quickly.

Likes 0

Dislikes 0

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer Yes

Document Name

Comment

None.

Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista agrees the revised language is clear.	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	

Response

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response

Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	
Document Name	

Comment

Texas RE is concerned the phrase “and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius)” in Requirements R2, R3 and R6 is ambiguous. Texas RE believes the SDT’s intent is to exempt certain generators that may only be called upon in emergency operating conditions from the full scope of the EOP-012 cold weather preparedness planning and operating requirements. However, Texas RE believes these situations are best handled through the submission of a documented exemption from requirements. This process will ensure clarity on which resources are required to operate and therefore adopt appropriate winterization measures. Texas RE suggests the following language for R2, R3 and R6 consistent with this approach (changes in bold):

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, **and unless received a documented exemption from its Balancing Authority or Reliability Coordinator, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),** shall:

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2024: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, **and unless received a documented exemption from its Balancing Authority or Reliability Coordinator, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius**), shall:

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 **and unless received a documented exemption from its Balancing Authority or**

Reliability Coordinator, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum:

Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

The addition of Corrective Action Plans allows an entity to not plan now in terms of cold weather preparedness and simply provide a 24/48 month CAP. CAPs are needed if there is an incomplete success of a cold weather preparedness plan's freeze protection measures but the language provided allows an entity to not implement freeze protection measures. It is noted that there is not a validation or approval of the CAP performed by any other entity. WECC questions whether that should be a consideration to support the good utility practice approach provided by the SDT?

It is unfortunate that there is an exemption for generating units that may be called upon to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies when experiencing freezing (or below freezing) weather. From a reliability standpoint a unit is being called upon that may not be ready and will possibly exacerbate the issue because of the exemption.

Likes 0	
Dislikes 0	

Response

Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano

Answer	
Document Name	

Comment

N/A to NCPA.

Likes 0	
Dislikes 0	

Response

Michael Whitney - Northern California Power Agency - 3,4,5,6

Answer	
Document Name	
Comment	
N/A to NCPA	
Likes 0	
Dislikes 0	
Response	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

3. In order to meet the FERC directive and reduce reliability risks more quickly, the SDT added new Requirement R7 Part 7.1.3 *"For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units."* Do you agree with this proposed language? If you do not agree, please provide your recommended language.

Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	
AEP is concerned by the proposed R7.1.4 which states "For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units." We believe the phrase "shall stagger" is overly prescriptive and should not be used within the requirement. As an alternative, we suggest instead stating "Shall implement each CAP developed in Requirement R6, and update each CAP if actions or timetables change, until completed." This aligns with how the CAP is managed in obligations within PRC-004 R6. To further support this, AEP recommends that language be added to the Technical Rationale document to make it clear that CAPs may be written per unit, per plant, or for a fleet as a whole, as appropriate for the reliability need at hand.	
Likes 0	
Dislikes 0	
Response	

Julie Hall - Entergy - 6, Group Name Entergy	
Answer	No
Document Name	
Comment	
This language leaves some ambiguity concerning the impact of staggering a CAP across multiple units versus the 48-calendar month completion requirement. For example, if a CAP was applicable across 3 units, and required 48 months for implementation, the subsequent CAP plan completions dates for the 2nd and 3rd until might exceed the 48-calendar month window from completion of the development of the CAP.	
Likes 0	
Dislikes 0	
Response	

Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	

Comment

Avista does not support the proposed language contained in Requirement R7, part 7.1.4. While we appreciate the Standard Drafting Team's efforts to closely align language with the FERC Order, we are concerned that the proposed change, could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We suggest the following language (see proposed changes in boldface):

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan **MAY shall** stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

Likes 0	
Dislikes 0	

Response

Ben Hammer - Western Area Power Administration - 1,6

Answer	No
Document Name	

Comment

7.1.3 does not identify the "stagger implementation method", this is identified in 7.1.4. WAPA doesn't agree with the implementation of this requirement as any addition to freeze protection measures will be based on manpower, cost, outages and scheduling. This will automatically ensure any implementation is staggered.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

Staggering is not always beneficial, so it should be an option and not a requirement. Upgrading insulation for the several units of a combined cycle plant, for example, would best be done in a single outage, not at separate times. Also, crews seamlessly move from one unit to the next for unobtrusive retrofits, such as installing wind breaks, and GO/GOPs should not have add pauses to prove that they sufficiently staggered the work for NERC compliance purposes.

Likes 0	

Dislikes 0	
Response	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	No
Document Name	
Comment	
7.1.3 does not identify the “stagger implementation method”, this is identified in 7.1.4. Do not agree with the implementation of this requirement as any addition to freeze protection measures will be based on manpower, cost, outages and scheduling. This will automatically ensure any implementation is staggered.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	
Comment	
R7.1.4 should be changed from using the word “shall”, to using the word “should” or the phrase “should or may use”. For implementing a corrective action across a fleet of generators, a staggered implementation is more likely to occur than simultaneous implementation. Modifications of almost any scale are likely to complete at different time even when implemented together. The “current” wording of R7.1.4 will do the following: 1. Delay the implementation of actions to meet the staggered requirement of R7.1.4. 2. Create regulatory burden for the GOs, for an action that does not benefit equipment reliability. (IE ensuring Staggered approach) 3. Prevent the simultaneous implementation of programmatic or procedural changes across multiple units if required by a corrective action.	
Likes 0	
Dislikes 0	
Response	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	No

Document Name	

Comment

No, MRO NSRF does not agree with the proposed language. While MRO NSRF can appreciate the Standard Drafting Team's intent by directly copying language from the FERC Order, MRO NSRF does not believe that having language in a mandatory and enforceable reliability standard which, if taken in its plain meaning, would require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly wholly resolve the issue. MRO NSRF suggests the following language:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the

Corrective Action Plan shall stagger implementation across those generating units, ***if doing so***

would not unduly delay the completion of the Corrective Action Plan.

In the case that this standard passes ballot, MRO NSRF would hold that this language would

constitute a non-substantive change as it is in line with the intent of the language in FERC order

and subsequently the proposed language within this standard.

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments.

Requirement above does not necessarily meet the intent of the FERC directive to reduce reliability risks more quickly for the following reasons:

- Requirement R7 Part 7.1.3. of the latest proposed draft EOP-012-2 is as follow: "List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and" and this is different than what is quoted above.

- If the comment is in reference to Requirement R7 Part 7.1.4. “For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.”, then the unintended consequence is that the entity shall include a timetable for implementing the selected corrective action(s) that **shall**, according to the requirement R7 Part 7.1.4, have **stagger** implementation across those generating units, even though staggering may not be required, hence introducing a delay in the reduction of the reliability risks.

Suggested wording to achieve the shorter implementation period as per FERC order intent:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan [delete word "shall"] **may** stagger implementation across those generating units.

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	No
Document Name	

Comment

PNM & TNMP recommends guidance on the timelines for staggering the CAPs. Specifically, are CAP timelines restricted to 24 calendar months (7.1.1) and 48 calendar months (7.1.2)?

Likes 0	
Dislikes 0	

Response

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	No
Document Name	

Comment

Although this allows flexibility for the company to create a staggered implementation based upon budget and outage timeframes, it adds more complexity for a company to manage and poses much more difficulty from an auditable perspective. It seems much simpler to propose an implementation by percentage based upon timeframe.

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

We do not support the proposed language contained in Requirement R7, part 7.1.4. While we appreciate the Standard Drafting Team's efforts to closely align language with the FERC Order, we are concerned that the proposed change could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We suggest the following language (see proposed changes in boldface):

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan **may** stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

Likes 0	
Dislikes 0	

Response

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	No
Document Name	

Comment

Although this allows flexibility for the company to create a staggered implementation based upon budget and outage timeframes, it adds more complexity for a company to manage and poses much more difficulty from an auditable perspective. It seems much simpler to propose an implementation by percentage based upon timeframe.

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

Avista does not support the proposed language contained in Requirement R7, part 7.1.4. While we appreciate the Standard Drafting Team's efforts to closely align language with the FERC Order, we are concerned that the proposed change, could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We suggest the following language (see proposed changes in boldface):

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan **may shall** stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

Likes 0	
Dislikes 0	

Response

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

NO. We agree with some comments provided by Avista and AEP but are not going to restate each item specifically, as others have already restated them.

Likes 0	
Dislikes 0	

Response

Michael Whitney - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

We agree with some comments provided by Avista and AEP but are not going to restate each item specifically, as others have already restated them.

Likes 0	
Dislikes 0	

Response

C. A. Campbell - LS Power Development, LLC - 5	
Answer	No
Document Name	
Comment	
We understand the intent of FERC to discourage procrastination of completing CAPs, however power plants have limited windows to plan for these actions. It may not be possible or feasible to ‘stagger’ CAP activities, especially if a scheduled outage is focused on critical maintenance and testing to meet other NERC requirements. Additionally, if there are multiple units that have similar CAPs, it may not be possible or practical to stagger them, as doing so would require multiple visits from the same vendor which increases costs and interferes with other planned maintenance; this introduces a risk to operational reliability. We would recommend removal of “shall” and instead consider using “where practical and feasible, stagger…”. Using the word “shall” becomes another prescriptive area to audit unnecessarily as it adds no value. Determining whether or not the Entity ‘staggered’ adds an administrative burden to both the Entity and the auditor.	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	No
Document Name	
Comment	
For multiple units that reside together, or within close proximity to one another, being required to stagger implementation of a CAP across those units may not be the most technically feasible or economic way to implement a CAP. For that reason, TAL suggests that the entity should be allowed to use good utility practices to decide whether a CAP implementation should be staggered, or not. Therefore, TAL proposes that Requirement R7 Part 7.1.4 be revised as follows: 7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan ***may*** stagger implementation across those generating units.	
Likes 0	
Dislikes 0	
Response	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	

Comment	
We agree with some comments provided by Avista and AEP but are not going to restate each item specifically, as others have already restated them.	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	
Answer	No
Document Name	
Comment	
The question is confusing as the wording appears to be part 7.1.4. and not 7.1.3 as stated; The added language does not appear to align with the intent in regard to reduced reliability risks. In addition, the added language appears to be stringent on implementation of the CAP. Recommend removal of part 7.1.4 of R7. The added language in 7.1.4 appears to be stringent upon implementation. Does not give the ability to do all at once with “shall stagger” approach.	
Likes 0	
Dislikes 0	
Response	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG’s comments.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No

Document Name	
Comment	
We support OPG’s comments.	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	
Comment	
Tri-State agrees with the MRO NSRF proposed language: *"7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, **if doing sowould not unduly delay the completion of the Corrective Action Plan**."*	
Likes 0	
Dislikes 0	
Response	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike	
Answer	No
Document Name	
Comment	
Tacoma Power supports the MRO NSRF comments.	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	

Answer	No
Document Name	

Comment

Minnesota Power supports MRO’s NERC Standards Review Forum’s (NSRF) comments.

Likes 0	
Dislikes 0	

Response

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion

Answer	No
Document Name	

Comment

This language is confusing and unnecessary. Entities should be free to determine the appropriate methodology for implmenting a CAP based on their own unique facts and circumstances rather than mandating anapproach which could cause additional cost and delay.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC signed on to ACES comments:

We at ACES appreciate the intent of the SDT when crafting this new Requirement Part; however, we do not agree that the GO should be required to stagger implementation of freeze protection measures. It is conceivable that the CAP(s) could be more economically or expeditiously completed without staggering the implementation across generating units. We recommend the following change:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan may allow for staggering the implementation across those generating units.

Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
The noted language appears to be in Part 7.1.4 rather than Part 7.1.3. We recommend the word “shall” be replaced with “may” in Part 7.1.4. Otherwise, it seems that staggered implementation is being mandated. Why force a GO to stagger their corrective actions if they can be performed concurrently without degrading System reliability? The High VSL does not account for contingency actions. The timetable is too restrictive due to the nature of nuclear projects. Recommend removing time requirements and only tracking in the GO’s Corrective Action Plan. Nuclear corrective actions are documented and maintained in accordance with 10CFR50 Appendix B.	
Likes 0	
Dislikes 0	
Response	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE supports the SRC Comments:	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	

Requirement above does not necessarily meet the intent of the FERC directive to reduce reliability risks more quickly for the following reasons:

{C}Ø Requirement R7 Part 7.1.3. of the latest proposed draft EOP-012-2 is as follow: “List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and” and this is different than what is quoted above.

{C}Ø If the comment is in reference to Requirement R7 Part 7.1.4. “For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.”, then the unintended consequence is that the entity shall include a timetable for implementing the selected corrective action(s) that **shall**, according to the requirement R7 Part 7.1.4, have **stagger** implementation across those generating units, even though staggering may not be required, hence introducing a delay in the reduction of the reliability risks.

Suggested wording to achieve the shorter implementation period as per FERC order intent:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall **may** stagger implementation across those generating units.

Likes 0	
Dislikes 0	

Response

Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

EDP Renewables NA supports the comments submitted by the NAGF.

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree, though this staggered implementation approach may allow entities more flexibility based upon their budget and outage timeframes, it adds more complexity to manage and poses more difficulty to audit without necessarily reducing reliability risks. Entities should have the option to implement concurrently and/or staggered for what best meets the needs, budgets, and timelines of the organization for efficient completion. This should be an option and not a requirement.

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree, though this staggered implementation approach may allow entities more flexibility based upon their budget and outage timeframes, it adds more complexity to manage and poses more difficulty to audit without necessarily reducing reliability risks. Entities should have the option to implement concurrently and/or staggered for what best meets the needs, budgets and timelines of the organization for efficient completion. This should be an option and not a requirement.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree, though this staggered implementation approach may allow entities more flexibility based upon their budget and outage timeframes, it adds more complexity to manage and poses more difficulty to audit without necessarily reducing reliability risks. Entities should have the option to implement concurrently and/or staggered for what best meets the needs, budgets and timelines of the organization for efficient completion. This should be an option and not a requirement.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No

Document Name	

Comment

The addition of this language provides neither increased reliability nor faster implementation of the standard. For the purposes of the Corrective Action Plans, it does not provide any measurable separation required for. In addition, over time, it is more likely to cause implementation of corrective actions to be delayed rather than applied sooner. This statement is based on the expectation that once we are beyond the first year CAPs, CAPs will be scheduled for the end of the initial 24 months. Therefore, any CAPs needed to be implemented for an event in the second year of enforcement will likely be pushed further out to meet the staggered implementation requirement.

FERC’s order for a staggered implementation plan has been addressed in a much more meaningful manner by incorporating a shorter implementation period from what was originally proposed in EOP-012-1. Instead of a five-year lumped implementation plan, the revised standard will be fully implemented within 24 months as proposed.

Likes 0

Dislikes 0

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

We at ACES appreciate the intent of the SDT when crafting this new Requirement Part; however, we do not agree that the GO should be required to stagger implementation of freeze protection measures. It is conceivable that the CAP(s) could be more economically or expeditiously completed without staggering the implementation across generating units. We recommend the following change:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan may allow for staggering the implementation across those generating units.

Likes 0

Dislikes 0

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren supports NAGF's comments on this project.

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	No
Document Name	

Comment

NV Energy does not agree with the proposed language. While NV Energy can appreciate the Standard Drafting Team's intent by directly copying language from the FERC Order, NV Energy does not believe that having language in a mandatory and enforceable reliability standard which, if taken in its plain meaning, would require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly wholly resolve the issue. NV Energy suggests the following language:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the

Corrective Action Plan shall stagger implementation across those generating units, ***if doing so would not unduly delay the completion of the Corrective Action Plan***.

In the case that this standard passes ballot, NV Energy would hold that this language would constitute a non-substantive change as it is in line with the intent of the language in FERC order and subsequently the proposed language within this standard.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	No
Document Name	

Comment

AES Clean Energy agrees with NAGF's comments to this question. FERC's order for a staggered implementation plan has been addressed in a much more meaningful manner by incorporating a shorter implementation period from what was originally proposed in EOP-012-1.

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	No
Document Name	

Comment

Enel does not agree with the proposed Requirement R7. First, the proposed language would require a staggered implementation, regardless of effectiveness of implementation of the Corrective Action Plan.

Enel would like to propose the SDT use the following language for Requirement R7: “…that addresses multiple generating units….” since the term “generating unit” has been defined within Section 4.2 Facilities.

Enel is also concerned with the introduction of “multiple (generating) units in a fleet” as the term “fleet” is not commonly used within the NERC Reliability Standards. Inverter based resources aggregating to over 75 MVA could be considered a fleet, or multiple inverted based resources GO registrations under the same parent corporation could also be considered a fleet depending on the interpretation.

Suggested language:

For one of more Corrective Action Plan(s) that address multiple generating units, the Corrective Action Plan shall stagger implementation across those generating units using Good Utility Practice, where practical.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC requests that Part 7.1.4 be revised to require GOs to document the justification for the staggering approach adopted.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	Yes
Document Name	

Comment	
WEC Energy Group supports the comments submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	

Exelon is supporting EEI response to this question.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation agrees that the revised language does clarify the creation of a timeline with specified completion dates and a path to resolution, i.e., issuing a constraint, if the implementation dates cannot be met. However, for large fleets/large numbers of modifications it may be recognized at the CAP creation that the EOP-012 CAP completion dates are unrealistic, forcing entities to create constraint declarations at the same time the CAP is created.

Kimberly Turco on behalf of constellation segments 5 and 6

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation agrees that the revised language does clarify the creation of a timeline with specified completion dates and a path to resolution, i.e., issuing a constraint, if the implementation dates cannot be met. However, for large fleets/large numbers of modifications it may be recognized at the CAP creation that the EOP-012 CAP completion dates are unrealistic, forcing entities to create constraint declarations at the same time the CAP is created.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson

Answer	Yes
Document Name	

Comment

PG&E agrees the proposed language addressed the FERC directive to reduce reliability risks more quickly.

Likes 0	
Dislikes 0	

Response

Andrew Smith - APS - Arizona Public Service Co. - 5

Answer	Yes
Document Name	

Comment

AZPS agrees with the proposed language and supports EEI's recommended additional language submitted with their comments to clarify the staggering of implementation of the Corrective Action Plan.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

Southern agrees with the proposed wording. Since the implementation period has been shortened from EOP-012-1, this is a reasonable approach. Many freeze protection measures will likely need to occur during outages and require planning (budget, materials and labor) such that a natural staggering most likely occur without a rigid requirement. Southern also supports the proposed EEI Draft language below as it does not change the intent of 7.1.4 and believes this is not a substantive change that could be made prior to final ballot.

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

Likes 0	
Dislikes 0	

Response

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer	Yes
Document Name	

Comment

While EEI supports the proposed language contained in Requirement R7, part 7.1.4, it could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We recommend the following language to address this concern (see proposed changes in boldface):

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

In the event this standard passes ballot, this change could still be implemented because it is a non-substantive change that is in-line with the intent of the language in the FERC order.

Likes 0	
Dislikes 0	

Response

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	
Response	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	
Document Name	
Comment	
FirstEnergy supports EEI's comments which state: While EEI supports the proposed language contained in Requirement R7, part 7.1.4, it could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We recommend the following language to address this concern (see proposed changes in boldface): 7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**	

In the event this standard passes ballot, this change could still be implemented because it is a non-substantive change that is in-line with the intent of the language in the FERC order.

Likes 0

Dislikes 0

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer

Document Name

Comment

The language provided may not meet FERC's possible meaning provided by the language in P88 regarding staggered implementation. Specifically, FERC referenced MOD-025 contained an approach for the Standard as a whole with a percentage of applicable units "staggered" over five (5) calendar years to get to 100%. The language as written provides staggering for CAPs not the Standard. Care needs to be taken with "staggered" or "phased-in" implementation language to ensure fairness as well as recognize efforts needed to implement Requirements for various sizes of entities. Industry should consider how to address single or lower-count Generator Owners. If language is written as "XX% of units must be completed by year Y" a single unit GO would need to be completed by year Y regardless of the percentage noted.

WECC appreciates the reasonable approach to implementing CAPs that may affect multiple units and supports the concept of reducing reliability risks quickly. However, it is not clear if there is staggering within the 24/48 month timeline or staggered past that time frame (i.e., beyond 24/48 months). If the language stays the SDT should fully explain what the phrasing means to avoid confusion in the industry as well as possible assumptions when compliance monitoring starts.

Likes 0

Dislikes 0

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer

Document Name

Comment

Texas RE recommends clarifying what is meant by "shall stagger implementation" in Requirement part 7.1.4 as the phrase is vague and could be interpreted to mean various things to different registered entities.

Likes 0

Dislikes 0

Response

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

4. Do you agree that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority thereby providing the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical, or procedural justification.

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC disagrees with the proposed approach and believes that a more efficient and cost-effective approach would be for Requirement R8 to include an affirmative obligation for GOs to provide RCs, BAs, and TOPs with constraint declarations and the associated operating limitations whenever the constraint obligation is updated. This would ensure uniformity in the provision of Generator Cold Weather Constraint declarations across all RCs, BAs, and TOPs.

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	No
Document Name	

Comment

Enel supports the MRO NSRF comments and recommendations to Requirement R8.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

The SDT has addressed the issue of providing reliability-related information to the BA in the case of a declaration being made. However, the SDT has also created a paperwork exercise by requiring an annual review of every declaration. The NAGF recommends the requirement be changed to a review at least every 5 years. While we recognize that things are changing quickly in some areas, it is unlikely that the technology and price of this type of equipment will change significantly over the course of a single year. The NAGF provides the following revised Requirement R8 language for consideration:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation appreciates the SDT efforts, but suggests that 8.1 be changed to read “Update the Generator Cold Weather Constraints declaration within 12 months of a change occurring which requires an updated declaration to be made; and...”

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	

Comment

Black Hills Corporation appreciates the SDT efforts, but suggests that 8.1 be changed to read “Update the Generator Cold Weather Constraints declaration within 12 months of a change occurring which requires an updated declaration to be made; and...”

Likes 0	

Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation appreciates the SDT efforts, but suggests that 8.1 be changed to read "Update the Generator Cold Weather Constriants declaration within 12 months of a change occurring which requires an updated declaration to be made; and..."	
Likes 0	
Dislikes 0	
Response	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
EDP Renewables NA supports the comments submitted by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	
The Requirement R8 Part 8.2 requires that “Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: ……. 8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.” There is no compliance obligation to communicate the identified Generating unit(s) operating limitations in cold weather related to the capability and availability, to the Balancing Authority, at the time of the initial declaration, nor at the time of the subsequent updates.	

The Reliability Coordinator awareness relies on IRO-010-4 Reliability Coordinator Data Specification and Collection "R1. The Reliability Coordinator shall maintain a documented specification for the data necessary for it to perform its Operational Planning Analyses, Real-time monitoring, and Real-time Assessments" which has Part "1.4. A **periodicity** for providing data."

The same applies for Transmission Operator under TOP-003-5 — Operational Reliability Data, for which the necessary data also relies on periodicity for providing data (see R1 Part 1.4)

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC Comments:

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

The removal of R8 Part 8.3 (as contained in Draft 1) from this draft seems to "weaken" the drafting team's effort to address the FERC concern expressed in P 64 of the FERC order. The connection between the GO providing Generator Cold Weather Constraint declaration information to their BA is loosely tied through a meandering path of EOP-012-2 R8 Part 8.2 and R1 Part 1.2; and TOP-003-5 R2 Part 2.3, R4 and R5. There is also an opportunity for misinterpretation in that EOP-012-2 R1 has an "at least once every five calendar years" stipulation so a GO might not make a linkage between R8 Part 8.2 being an "update as needed" requirement versus only needing to update the data specified in R1 at least once every five calendar years. We understand that the drafting team may be limited in adding BA applicability to EOP-012-2 or bringing changes to TOP-003 into the project scope. Perhaps a footnote could be added for R1 Part 1.2 to help clarify the expectation that capability and availability data impacted by a Generator Cold Weather Constraint declaration shall be updated on an as declared basis.

We recommend the drafting team consider combining R8 with R7. The possibility of encountering and documenting/declaring a Generator Cold Weather Constraint is introduced in R7 Part 7.4. Requirement R8 then addresses follow-on activities associated with declaring a Generator Cold Weather Constraint. These could be added under Part 7.4 as follows eliminating the need for R8:

"*7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.* ***For each declaration:***

7.4.1. Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and

7.4.2 Update the operating limitations associated with capability and availability per Requirement R1 Part 1.2 if applicable."

Likes 0	
Dislikes 0	

Response

Junji Yamaguchi - Hydro-Quebec (HQ) - 5

Answer	No
Document Name	

Comment

We support OPG and Manitoba Hydro comments.

Likes 0	
Dislikes 0	

Response

Nicolas Turcotte - Hydro-Quebec (HQ) - 1

Answer	No
Document Name	

Comment

We support OPG and Manitoba Hydro comments.

Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	

Response

Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano

Answer	No
Document Name	
Comment	
We agree with some comments provided by ACES, EEI, MRO, NAGF, and Talen but are not going to restate each item specifically, as others have already restated them.	
Likes 0	
Dislikes 0	
Response	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	No
Document Name	
Comment	
Structured, periodic winter-season data requests to declare operational constraints may not align with the timing of actual awareness or discovery of a ‘constraint’. This would be a gap in reliability planning and resource adequacy for the region. This requirement, as written, doesn’t allow for off-cycle notifications to the Entity’s BA or TOP. Rather, consider language that requires the Entity to report the constraint within a certain timeframe (30 days, etc.) from the date of discovery. Another option would be to utilize CORES or Align to report ‘living’ operational data that the BA and TOP may have access to at any given time. The entity mapping tab in CORES could be used for access management control.	
Likes 0	
Dislikes 0	
Response	
Michael Whitney - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	

Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
NO. We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	

Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	

While Avista agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. **U**pdate the Generator Cold Weather Constraint declaration**. when a change occurs that would require an updated declaration be made**; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	
Response	

Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	

Comment

While we agree that Requirement R8 is sufficient to update the generating unit’s data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. **Update** the Generator Cold Weather Constraint declaration **when a change occurs that would require an updated declaration be made**; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	No
Document Name	

Comment

PNM & TNMP support EEI’s recommended change to 8.1.

"Update the Generator Cold Weather Constraint declaration when a change occurs that would require an updated declaration be made; and"

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee’s comments.

The Requirement R8 Part 8.2 requires that “Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: ……. 8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.”

There is no compliance obligation to communicate the identified Generating unit(s) operating limitations in cold weather related to the capability and availability, to the Balancing Authority, at the time of the initial declaration, nor at the time of the subsequent updates.

The Reliability Coordinator awareness relies on IRO-010-4 Reliability Coordinator Data Specification and Collection "R1. The Reliability Coordinator shall maintain a documented specification for the data necessary for it to perform its Operational Planning Analyses, Real-time monitoring, and Real-time Assessments" which has Part "1.4. A **periodicity** for providing data."

The same applies for Transmission Operator under TOP-003-5 — Operational Reliability Data, for which the necessary data also relies on periodicity for providing data (see R1 Part 1.4).

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

If the GO creates a cold weather constraint it should be communicated via an agreed upon method with the system planning and operating authority. Cold weather constraints are only one of a variety of reasons why a unit capability maybe limited. These constraints/restrictions should/can be communicated upon an already approved method.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

Suggest changing requirement as stated below:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning

8.1. Preform a "five-year" review and update the Generator Cold Weather Constraint declaration as needed; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	

Dislikes 0

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

The minimum temperature value from R1.2.2 of EOP-012-2 is formally accepted in M3 of the standard as proof of ECWT capability, so this issue is neatly wrapped up from a compliance point of view. As a practical matter, however, the fact that NERC is looking solely for a DBT value can create uncertainty, potentially badly misleading RCs, BAs and TOPs obtaining this information via IRO-010 and TOP-003. A unit that has survived -5 F with zero wind and has an ECWT of -2 F, for example, may freeze-up at 0 F with a 20 mph wind (-22 F wind chill temperature).

Using design data instead of historical operation for R1.2.2 does not necessarily improve matters. Our experience is that a heat tracing/insulation system designed per IEEE-515 for, say, -2 F/20 mph will typically get the job done at -2 F/0 mph, but the unit is likely to freeze at -2 F/10 mph, and it will definitely be forced offline at -2 F/20 mph.

The emphasis on an ECWT also seems misplaced due to the fact that disasters such as Winter Storm Uri involved weather far below this temperature. The Technical Rationale document says that grid operators can then, “arrange for additional resources,” but power from elsewhere is unlikely to be available if decades worth of new power plants have been influenced by EOP-012-2 continent-wide to cut-out at or near the ECWT.

Likes 0

Dislikes 0

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

While Avista agrees that Requirement R8 is sufficient to update the generating unit’s data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. (***Preform an annual review and - remove)*** **U**pdate the Generator Cold Weather Constraint declaration (***as needed.* - remove) when a change occurs that would require an updated declaration be made**; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	Yes
Document Name	

Comment

While AES Clean Energy agrees R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we would recommend that the language be modified so that the Generator Owner only be required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, an annual review is just an administrative burden that provides no reliability benefit.

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	Yes
Document Name	

Comment

While NV Energy agrees the R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, NV Energy would recommend that the language be modified so that the Generator Owner only be required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather

Constraint is defined in this proposed standard; the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall:

[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. *Preform an annual review and* **Update the Generator Cold Weather Constraint** declaration *as needed* ***when a change to the declaration is made***; and

8.2. Update the operating limitations associated with capability and availability per

R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	Yes
Document Name	

Comment

Ameren supports NAGF's comments on this project.

Likes 0	
Dislikes 0	

Response

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer	Yes
Document Name	

Comment

While EEI agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. **U**pdate the Generator Cold Weather Constraint declaration **when a change occurs that would require an updated declaration be made**; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
The current NERC standards TOP-003 ad IRO-101 provide adequate capability for BA, TOP, and RCs to request and receive the information they need.	
Likes 0	
Dislikes 0	
Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority. AZPS also agrees with comments submitted by EEI that the language should be modified so that a GO is only required to update a Generator Cold Weather Constraint declaration when a change occurs as an annual review just creates an administrative burden that provides no reliability benefit. AZPS agrees with EEI submitted alternative language to address this concern.	
Likes 0	
Dislikes 0	
Response	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike	
Answer	Yes
Document Name	
Comment	
Tacoma Power supports the MRO NSRF comments.	
Likes 0	

Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	
PG&E agrees the R8 language is sufficient to update the generating unit's data specifications.	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments.	

Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon is supporting EEI response to this question.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	Yes
Document Name	

Comment

WEC Energy Group supports the comments submitted by the Edison Electric Institute.

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	

Comment

FirstEnergy supports EEI's comments which state:

While EEI agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following :

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. **U**pdate the Generator Cold Weather Constraint declaration as needed. when a change occurs that would require an updated declaration be made; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	Yes
Document Name	

Comment

While MRO NSRF agrees the R8 is sufficient to update the generating unit’s data specifications that are available to the Balancing Authority, MRO NSRF would recommend that the language be modified so that the Generator Owner only be required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather

Constraint is defined in this proposed standard, the Generator Owner would be required to ensure

that Generator Cold Weather Constraint as claimed is appropriate at any given time.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall:

[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1.

Update the Generator Cold Weather Constraint

declaration as needed ***when a change to the declaration is made***; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Mia Wilson - Southwest Power Pool, Inc. (RTO) - 2 - MRO

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Colin Chilcoat - Invenergy LLC - 6

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Helen Lainis - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ben Hammer - Western Area Power Administration - 1,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE does not agree with removing Requirement Part 8.3. The Generator Owner (GO) should be required to provide its declaration to the Balancing Authority, Reliability Coordinator, or Transmission Operator, along with justification for that declaration. Texas RE is concerned that without an explicit requirement, the GO's constraint declarations may not be communicated to the Reliability Coordinator, Balancing Authority or Transmission Operator that are expecting reliable operation of the units. The Time Horizons for IRO-010 and TOP-003 data submissions do not match with EOP-012-2 applicable Time Horizon. Therefore, Texas RE recommends SDT consider including reporting the operating limitations of the generating units during extreme cold weather conditions to the BA/RC and retaining the previous 8.3 language in the standard for this annual one-time submission with additional schedule requirement for audit purposes. Texas RE recommends the following requirement language:	

8.3. Provide the Generator Cold Weather Constraint declaration to the Balancing Authority, Reliability Coordinator, or Transmission Operator within 90 days of completing the annual review and update as well as justification for that declaration.

Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

FERC did mention the possibility of a Reliability Coordinator being a planning and operational entity. Unfortunately, FERC did not include Transmission Operators explicitly, but the language in E0P-012 was utilized in IRO-010 and TOP-003 for RCs, BAs, TOPs and GOs all to have the same language. This makes the language provided by the SDT reasonable in terms of updating information to be utilized by the RC/BA/TOP but falls short of notifying the entities regarding a declaration. It will not be clear whether a generator units' capability and availability was the cause of cold weather protection measures needing correction or other factors that may change the unit's capability and availability. Putting the onus on the RCs/BAs/TOPs to call out specifics on capability and availability due to cold weather constraint declaration may result in differences in implementation and expectations across the industry. As important constraint declarations are for ensuring reliable operations, the notifications should be made explicitly so that planning and operating entities have a clear understanding of the CAPs impact to capability and availability.

When compliance monitoring begins, as written, an entity will need to demonstrate when CAP-related changes occurred related to R1 information. An entity's internal control(s) regarding provision of data and awareness for planning and operating entities may be explored.

SDT should consider a sub-requirement requiring notification to include the BA, RC, TOP, and GOP for declaration. This may be considered somewhat administrative in nature but provision of data through the method selected between entities (e.g., often SCADA) may not equate to notification of a change due to the facts and circumstances (especially those that support a declaration).

Additionally, to satisfy FERCs apparent need to know about declarations, the SDT (or NERC) should consider a Periodic Data Submittal for declarations to maintain awareness.

Likes 0	
Dislikes 0	

Response

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.do

5. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. Do you agree with this proposed timeframe? If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

Ben Hammer - Western Area Power Administration - 1,6	
Answer	No
Document Name	
Comment	
WAPA does not agree with the new dates and recommends remaining with EOP-012-1 original dates.	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
A schedule is needed for implementation of presently Non-GUP winter reliability technologies that become viable at some future time. There may come a day when wind turbine blade anti-icing becomes a proven alternative, for example, and wind farms owners will then need an extensive period for installing retrofits.	
Likes 0	
Dislikes 0	
Response	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	No
Document Name	
Comment	

Reclamation does not agree with the new dates and recommends remaining with EOP-012-1 original dates.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments.

FERC directed NERC to address concerns relating to the extensive period before generators must implement freeze protection measures or develop corrective action plans. This is not equivalent with the GOs having the capability to operate at the ECWT or a CAP written by the effective date of the requirement.

The major and necessary decrease in reliability risk is achieved through the mere implementation of freeze protection measures, which will eliminate the simultaneity of the generator cold weather events. Appropriate planning should ensure adequate reserve is available to replace the generating units subject to a cold weather event.

Likes 0	
Dislikes 0	

Response

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

NO. It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.

Likes 0	
Dislikes 0	

Response

Michael Whitney - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	
Comment	
It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	No
Document Name	
Comment	
We do not agree with the shortened time frame to identify and document a CAP. This process requires an engineering analysis to first identify all GCWCCs and then assess them for sufficient weatherization measures. Not only does this take time to complete, it poses a challenge to identify and schedule a qualified vendor for GOs with multiple plants in their fleet. Thanks to this standard, vendors with this specialized expertise are now competitively sought after. Reducing the clock not only increases the challenge, but also the market price of the service, making this shortened time frame unduly burdensome. We support the original 4/1/2028 date.	
Likes 0	
Dislikes 0	
Response	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	

Answer	No
Document Name	

Comment

Too restrictive. We need to check for feasibility. What alternatives exist if CAP cannot be put in place due to design limitations? Need to have the ability to file a declaration if the existing equipment cannot be modified to run below ECWT or to run during an icing event. With the equipment that already exists there are situations where ECWT is literally 2 degrees lower than design temperature and there is either nothing that can be done or cost prohibitive to the business.

Likes 0	
Dislikes 0	

Response

Nicolas Turcotte - Hydro-Quebec (HQ) - 1

Answer	No
Document Name	

Comment

We support OPG comments.

Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	

Response

Junji Yamaguchi - Hydro-Quebec (HQ) - 5

Answer	No
Document Name	

Comment

We support OPG comments.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson

Answer	No
Document Name	

Comment

PG&E disagrees with the proposed timeframe. PG&E recommends an extended period such as 2 years from the approval date to implement R5 which allows PG&E time to establish the “annual” training periodicity.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Allete - Minnesota Power, Inc. - 1

Answer	No
Document Name	

Comment

Minnesota Power supports the North American Generator Forum’s (NAGF) comments.

Likes 0	
Dislikes 0	

Response

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion

Answer	No
Document Name	

Comment

Requirement 3 addresses operating requirements for existing units and units that commission prior to October 1, 2027. There is currently no limitation on the time a unit must operate at its calculated extreme cold weather temperature. The previous draft as well as the exiting, approved version of EOP-012 contains a one (1) hour operating limitation for existing units at the extreme cold weather temperature that no appears to have been eliminated from the proposed version. Dominion Energy recommends that this 1-hour operating requirement be reinstated in the Standard rather than the current unbounded operating requirements for existing units.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	No
Document Name	

Comment

FERC directed NERC to address concerns relating to the extensive period before generators must implement freeze protection measures or develop corrective action plans. This is not equivalent with the GOs having the capability to operate at the ECWT or a CAP written by the effective date of the requirement.

The major and necessary decrease in reliability risk is achieved through the mere implementation of freeze protection measures, which will eliminate the simultaneity of the generator cold weather events. Appropriate planning should ensure adequate reserve is available to replace the generating units subject to a cold weather event.

Likes 0	
Dislikes 0	

Response

Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

EDP Renewables NA supports the comments submitted by the NAGF.

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with the new dates and recommends the dates remain the same as original dates in EOP-012-1.

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with the new dates and recommends the dates remain the same as original dates in EOP-012-1.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with the new dates and recommends the dates remain the same as original dates in EOP-012-1.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

The NAGF continues to have concerns that the hard limit of 24 months for existing equipment and 48 months for new equipment to address cold weather will cause entities to create a work of fiction for CAPs that must address a large number of units. As an example, there may come a day when wind turbine anti-icing becomes a proven alternative, and wind farm owners will then need an extensive period for installing retrofits. If a large number of wind turbine owners are looking to implement this technology at one time, there will be issues with outage scheduling, procurement of the parts, procurement of the labor and equipment to install the parts, etc. We note that multiple Balancing Authorities currently tout the amount of wind generation supporting their load service. Just scheduling of outages for the purpose of addressing cold weather effort may take a significant time when layered on top of preventative and forced maintenance.

For this reason, the limited time period for the CAPs will cause the creation of a CAP to meet the requirement that is not based in reality. This should not be the intent of any regulation. The NAGF has proposed a reasonable alternative that still incorporates a limitation on the time allowed while addressing the fact that there are limited resources and maintenance periods for generators to utilize for outages.

The implementation plan for the overall standard appears reasonable based on what is needed to be completed at a specific time.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren supports NAGF's comments on this project.

Likes 0	
Dislikes 0	

Response

Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro

Answer	No
Document Name	

Comment

BC Hydro’s assessment is that a 24-month implementation timeline would be needed to analyze the additional precipitation inclusions, determine all required freeze protections, create PM programs, setup processes to track CAPs and schedule necessary outages for CAPs implementation and completion for all units in scope while also observing environmental constraints, such as birds nesting and fish flows.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC recommends that the drafting team further clarify the language regarding CAPs in Requirement R7. As proposed, R7 does not appear to include sufficient focus on CAP implementation. Additionally, the SRC reads Part 7.1.1 to require a GO to "[l]ist the action(s) which address(es) existing equipment or freeze protection measures" and to implement those within 24 calendar months, while Part 7.1.2 requires a GO to "[l]ist the action(s) which require(s) new equipment or freeze protection measures" and implement those within 48 calendar months. However, because some corrective actions may address existing equipment and also require new measures, these categories are not necessarily mutually exclusive, and an ambiguity could therefore arise regarding the appropriate timeline that would apply in such a case. The SRC presumes that the CAP implementation timeline should depend on whether new equipment is required to be installed, and not on whether the CAP "addresses" existing equipment or measures. Regarding the timeline, new "measures" that don't require new equipment would not seem to require more than a year to complete, while new equipment should not require more than two years in the vast majority of cases. Therefore, the proposed 24- and 48-month timelines seem excessive.

The SRC suggests the following revised language for R7, Parts 7.1 and 7.2:

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1 (**new subpart**) Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, document the generator's best efforts to promptly implement all immediate and near term actions that it can take prior to the next upcoming winter season to winterize the generating unit(s) to operate at its calculated Extreme Cold Weather Temperature;

7.1.2 (in place of 7.1.1) Specify each corrective action that does not require the installation of new equipment but which cannot be implemented prior to the next upcoming winter season. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 12 months of development of the Corrective Action Plan;

7.1.3. (in place of 7.1.2) Specify each corrective action that requires the installation of new equipment. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 24 months of development of the Corrective Action Plan;

7.1.4. (was R7.1.3) List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and

7.1.5. (was R7.1.4) For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units and include within the CAP supporting documentation for the time needed to implement those actions and justification of the staggering approach adopted.

Likes 0

Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista can comply within this timeframe.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
The MRO NSRF agrees the shortened timeframe is adequate.	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy has no objections to the Implementation Plan presented.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM & TNMP supports the EOP-012-2 IP timeframe as proposed.	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes

Document Name	
Comment	
We can comply with this timeframe.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	

Exelon is supporting EEI response to this question.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	

Comment

AZPS does not oppose this change.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

The proposed timeframe balances the need for a rapid implementation and the capability of GOs to plan, schedule, and implement additional freeze protection requirements.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	Yes
Document Name	

Comment

While AES Clean Energy agrees with the proposed timeline, we want to bring NERC and Standard Drafting Team's attention concerning unintended consequences of this timeline. For example, when wind turbine blade de-icing technology becomes commercially available, many windfarm Generator Owners will be reaching out to OEMs or vendors to order the kits and schedule with contractors to install. This will lead to outage scheduling issues, supply chain issues, as well as procuring labor for the installation work. This could also result in reliability issues if certain BA's footprint has large amount of wind generation taken offline for extended period of time for the work to be performed.

Likes 0	
Dislikes 0	

Response

Natalie Johnson - Enel Green Power - 5

Answer	Yes
Document Name	
Comment	
No comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	

Response

Jeffrey Streifling - NB Power Corporation - 1

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Helen Lainis - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	
Document Name	
Comment	
No Additional Comments	
Likes 0	
Dislikes 0	
Response	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

6. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

Natalie Johnson - Enel Green Power - 5

Answer	No
Document Name	

Comment

It is difficult for the industry to determine the full cost implications of EOP-012-2. Particularly with the development of Corrective Action Plans as a result of extreme weather, it is premature, to determine at this time, the cost implications until it is fully known what is actually involved.

Likes 0	
Dislikes 0	

Response

Colin Chilcoat - Invenergy LLC - 6

Answer	No
Document Name	

Comment

Invenergy believes the SDT improved upon the previous draft, but, absent a comprehensive cost-benefit analysis, is not in a position to comment on the cost-effectiveness of the modifications in EOP-012-2.

Likes 0	
Dislikes 0	

Response

Rhonda Jones - Invenergy LLC - 5,6

Answer	No
Document Name	

Comment

Suggestions:

- Run Models/Simulations evidencing the key recommendations are achievable
- Publish Cost Recovery Impact Reports and share with Registered Entities
- Perform a comprehensive cost benefit analysis

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

We do not believe that either following changes are a cost-effective solution:

- The inclusion of “impacts of freezing precipitation on equipment” in the definition of “Generator Cold Weather Reliability Event”
    - By including the impacts of freezing precipitation on equipment, the proposed revision could potentially cause the industry to adopt an iterative approach to compliance. Furthermore, modifying the definition in such a manner could cause the GO to be at risk of non-compliance with Requirement R6 even when fully compliant with R2 or R3 as applicable.
        - As written, Requirements R2 and R3 require the GO to implement freeze protection measures based on the Extreme Cold Weather Temperature; however, the GO is not required to address the impacts of freezing precipitation on equipment under either Requirement.
- The modification to Requirement R4 Part 4.4 changing “may include” to “includes”
    - This seemingly minor change has enormous compliance consequences for the GO.
        - By requiring the GO to document freeze protection measures used to reduce the cooling effects of wind and the effects of freezing precipitation, the proposed change will force the GO to evaluate and possibly implement such measures. This is further exacerbated by the fact that Requirements R2 and R3 only require the GO to implement freeze protection measures based on temperature alone.
            - We believe such an evaluation and subsequent implementation is cost prohibitive and an undue compliance burden for the GO.
        - We recommend reverting to the previous language for Requirement R4 Part 4.4.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	No
Document Name	

Comment

We do not agree with the way this standard draft is being developed.

We consider these key recommendations implementations to be non-cost effective.

The purpose of EOP-012 standard is: “To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.”

There is no reliability gap for the Canadian Entities, as these entities are successfully operating in a Cold Climate through the associated extremes, with the aid of their current operating instructions, procedures, training, and specific station design.

The concern for the GO/GOP with less than adequate winterization plan in place (i.e., Texas, SPP) is not applicable to Canadian entities.

In those regions where the GO/GOP do not have winterization implemented, there is always the potential for concurrent cold weather events (outages due to freezing), when temp drops below freezing point and all the GO/GOP are affected at the same time, triggering cascading events.

This is not the case for the Canadian entities, and for that reason there should be an **exception in the applicable Facilities, to exclude the Canadian GO/GOP facilities**, as a cost-effective approach, without the undue compliance burden, towards the reliable operation of these facilities.

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC Comments:

The ECWT is calculated to a temperature higher than actual minimum experienced. The Standard as written may not prevent the freezing of generating equipment during a recurrence of Winter Storm Uri even if all entities are EOP-012-2 compliant.

At a minimum the ECWT, should be calculated to include those temperatures that were an initial driving force for the development of the EOP-012 Standard.

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

We remain concerned that EOP-012-2 being applicable to nuclear generation sites is not cost effective. As we commented on Draft 1, the nuclear power industry is used to working under NRC regulation and INPO guidance in this area, and adding another layer of NERC requirements (potentially overlapping) adds an extra burden to the site staffs and confusion on what actions are necessary and required.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC signed on to ACES comments:

We do not believe that either following changes are a cost-effective solution:
•
The inclusion of “impacts of freezing precipitation on equipment” in the definition
of “Generator Cold Weather Reliability Event”
o
By including the impacts of freezing precipitation on equipment, the
proposed revision could potentially cause the industry to adopt an iterative
approach to compliance. Furthermore, modifying the definition in such a
manner could cause the GO to be at risk of non-compliance with
Requirement R6 even when fully compliant with R2 or R3 as applicable.
▪
As written, Requirements R2 and R3 require the GO to implement
freeze protection measures based on the Extreme Cold Weathe
Temperature; however, the GO is not required to address the
impacts of freezing precipitation on equipment under either
Requirement.
•
The modification to Requirement R4 Part 4.4 changing “may include” to “includes”
o
This seemingly minor change has enormous compliance consequences fo
the GO.
▪
By requiring the GO to document freeze protection measures used to
reduce the cooling effects of wind and the effects of freezing
precipitation, the proposed change will force the GO to evaluate and
possibly implement such measures. This is further exacerbated by
the fact that Requirements R2 and R3 only require the GO to
implement freeze protection measures based on temperature alone.
•
We believe such an evaluation and subsequent

implementation is cost prohibitive and an undue compliance burden for the GO.

▪

We recommend reverting to the previous language for Requirement R4 Part 4.4.

Likes 0	
Dislikes 0	
Response	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments	
Likes 0	
Dislikes 0	
Response	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	

Comment

The SDT has not stated a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply someone says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.

Likes 0	
Dislikes 0	

Response

C. A. Campbell - LS Power Development, LLC - 5

Answer	No
Document Name	

Comment

We do not believe the modifications take the cost burden into account. The technical rationale is very light when attempting to support Requirement R1 and its sub-parts. There is little value requiring at-design unit data for existing facilities, especially if they have been in operation for several years. Spending resources to ascertain design parameters pulls focus and resources away from completing CAPs with no value added. Additionally, there are a lot of market overtones to the FERC directives. We agree that the line will always be blurred when it comes to reliability and resource adequacy, however it should not present a financial burden through required upgrades (within challenging timelines) to doubly ensure continuous operations at times of peak demand. These costs are ultimately passed down to the rate payer in many cases, meaning that cost burdens of the plant owner would impact the end user. This scenario creates an inability to pay for the same electricity all these measures are meant to preserve, making the reliability aspect moot at times of critical need.

Likes 0	
Dislikes 0	

Response

Michael Whitney - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

The SDT has not stated a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply someone says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.

Likes 0	
Dislikes 0	
Response	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
NO. The SDT has not stated a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply someone says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
This standard is really directed towards thermal generating units that utilize steam or water in their process. It would be much more cost effective for the industry and Avista if the SDT and FERC were to determine the resources most at risk for cold weather compliance restrictions and focus this reliability guidance on those units. For instance hydro facilities have near zero cold weather events, as do simple cycle combustion turbines. Our experience with following the guidance for developing cold weather compliance plans, training, interviewing our folks and determining ECWT for each hydro and simple cycle facility has resulted in very minor changes to the procedures, practices and equipment at these facilities. We feel that the risk to these facilities during extreme cold weather events is very low. It would be most economic for the industry and Avista if the SDT and FERC were to verify the most at risk resources and limit the boundaries of this standard to cover only the at risk generating resource types.	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No

Document Name	
Comment	
NRG believes that this version is an improvement to the previous version of this draft. However, without any measures towards cost recovery for those entities requiring additional cold weather protection, by default, this remains as not being cost effective.	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	
Comment	
This standard is really directed towards thermal generating units that utilize steam or water in their process. It would be much more cost effective for the industry and Avista if the SDT and FERC were to determine the resources most at risk for cold weather compliance restrictions and focus this reliability guidance on those units. For instance hydro facilities have near zero cold weather events, as do simple cycle combustion turbines. Our experience with following the guidance for developing cold weather compliance plans, training, interviewing our folks and determining ECWT for each hydro and simple cycle facility has resulted in very minor changes to the procedures, practices and equipment at these facilities. We feel that the risk to these facilities during extreme cold weather events is very low. It would be most economic for the industry and Avista if the SDT and FERC were to verify the most at risk resources and limit the boundaries of this standard to cover only the at risk generating resource types.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
NRG believes that this version is an improvement to the previous version of this draft. However, without any measures towards cost recovery for those entities requiring additional cold weather protection, by default, this remains as not cost effective.	
Likes 0	
Dislikes 0	
Response	

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	No
Document Name	
Comment	
PNM & TNMP have concern with winterization of cold weather critical components affecting the reliability of summer operations during high temperature conditions. The cost is to be determined being cost effective for both winter and summer conditions.	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments. We do not agree with the manner in which this standard draft is being developed. We consider these key recommendations implementations to be non-cost effective. The purpose of EOP-012 standard is: "To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units." **There is no reliability gap for the Canadian Entities, as these entities are successfully operating in a Cold Climate through the associated extremes**, with the aid of their current operating instructions, procedures, training, and specific station design. The concern for the GO/GOP with less than adequate winterization plan in place (i.e., Texas, SPP) is not applicable to Canadian entities. In those regions where the GO/GOP do not have winterization implemented, there is always the potential for concurrent cold weather events (outages due to freezing), when temp drops below freezing point and all the GO/GOP are affected at the same time, triggering cascading events. This is not the case for the Canadian entities, and for that reason there should be an **exception in the applicable Facilities, to exclude the Canadian GO/GOP facilities**, as a cost-effective approach, without the undue compliance burden, towards the reliable operation of these facilities.	
Likes 0	
Dislikes 0	
Response	

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
Operating in “extreme” cold weather is normal operating conditions. This standard appears to be more relevant for generating units (GSU in or out of scope debatable) when they are not located inside a powerhouse. For hydraulic generators it is unclear if run of the river water is to be considered “fuel”. It doesn’t appear to be specifically excluded. Again it is difficult to see the rationale and benefits for this standard towards hydraulic generating units in our region.	
Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	
Response	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	No
Document Name	
Comment	
Reclamation does not agree. As annotated in this form, multiple requirements are being added which burdens the facilities with excessive requirements and equipment installation.	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
See our comments above.	
Likes 0	
Dislikes 0	
Response	

Ben Hammer - Western Area Power Administration - 1,6

Answer	No
Document Name	

Comment

WAPA does not agree. As annotated in this form, multiple requirements are being added with no technical rationale which burdens the facilities with excessive requirements and equipment installation.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

This standard is really directed towards thermal generating units that utilize steam or water in their process. It would be much more cost effective for the industry and Avista if the SDT and FERC were to determine the resources most at risk for cold weather compliance restrictions and focus this reliability guidance on those units. For instance hydro facilities have near zero cold weather events, as do simple cycle combustion turbines. Our experience with following the guidance for developing cold weather compliance plans, training, interviewing our folks and determining ECWT for each hydro and simple cycle facility has resulted in very minor changes to the procedures, practices and equipment at these facilities. We feel that the risk to these facilities during extreme cold weather events is very low. It would be most economic for the industry and Avista if the SDT and FERC were to verify the most at risk resources and limit the boundaries of this standard to cover only the at risk generating resource types.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	Yes
Document Name	

Comment

Ameren supports NAGF's comments on this project.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	Yes
Document Name	

Comment

With the utilization of Good Utility Practice, the SDT has brought into the standard a much better hurdle for use by a Generator Owner to make a declaration. However, the issues identified in Question 1 above must be addressed.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

The requirement for good utility practice brings a measure of reasonableness from a cost and technology perspective that is acceptable.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson

Answer	Yes
Document Name	

Comment

PG&E agrees the modifications meet the key recommendations but can not comment on the cost effectiveness.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf of constellation segments 5 and 6

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	

Comment

FirstEnergy has no objections to the approaches presented.

Likes 0	
Dislikes 0	

Response	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
The MRO NSRF has no comments.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost-effectiveness.	
Likes 0	

Dislikes 0

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer

Document Name

Comment

Black Hills Corporation will not comment on cost-effectiveness.

Likes 0

Dislikes 0

Response

Andrew Smith - APS - Arizona Public Service Co. - 5

Answer

Document Name

Comment

AZPS will not comment on cost effectiveness of this change.

Likes 0

Dislikes 0

Response

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer

Document Name

Comment

NA

Likes 0

Dislikes 0

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

No Comment

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	
Document Name	

Comment

Duke Energy’s focus is to assure the effective and efficient reduction of risks to the reliability and security of the grid and will not provide comments on the cost effectiveness of the proposed changes.

Likes 0	
Dislikes 0	

Response

7. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Thomas Foltz - AEP - 5

Answer	
Document Name	

Comment

AEP believes that the first bullet of in R1.2.2 should have an “or” added to the end, as was previously added to the second bullet. As a result, an “or clause” would collectively apply to all three bulleted items. The SDT’s feedback in their Consideration of Comments document from September 2022 clearly indicates this as their original intent, however adding this “or” to the first bullet would be a step forward in clarity.

Likes 0	
Dislikes 0	

Response

Ben Hammer - Western Area Power Administration - 1,6

Answer	
Document Name	

Comment

The inclusion of concurrent wind speed and precipitation requirements in this document enacts an undue burden and cost on industry for a measure that has been added without technical rationale or justification. Wind/precipitation analysis for each component without historical information is of no value added and analyzing individual pieces of equipment for the ability to withstand wind/precipitation is not cost effective and is over-reach.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	
Document Name	

Comment

Please consider the following comments:

1. Remove the heated building exclusion from the definition of Generator Cold Weather Critical Component.

a. The expanded definition for Generator Cold Weather Critical Component is misleading and does not align with the explanation provided in the technical rationale document for EOP-012-2 or with statements made by the Project 2021-07 team during public webinars. From the technical rationale document and webinar comments, the intent was to exclude critical components inside buildings with dedicated building heating equipment. The new definition employs the phrase “heating source that regularly maintains the space”. This phrasing opens the definition to heating sources that are not devices dedicated to building heating.

b. Additionally, the new definition does not support equipment reliability. The exclusion is based on the idea that freeze protection in the form of a building and dedicated heating is already in place to protect critical equipment. By excluding these components, the new definition would also exclude the associated freeze protection measures from requirements R4.5, which requires annual maintenance on freeze protection measures for critical components. Requirement R4.5 mandates maintenance activities to ensure improved equipment reliability, prevent winter reliability events, and prevent CAP entries on events. Excluding buildings and their dedicated heating equipment from the requirements of R4.5 puts the industry at risk of more winter reliability events and does not align with operating experience events learned during Winter Storm Uri related to open doors, windows, etc.

2. Requirement R5 needs to be modified to exclude stations that have no actionable activities in their cold weather preparedness plan as defined in requirement R4.

a. Requirement R4 sets the minimum requirements for the contents of the cold weather preparedness plan. The only actionable item in R4 is R4.5, which requires annual inspection and maintenance of freeze protection measures. Requirement R5 requires training for all maintenance or operations personnel responsible for implementing the cold weather preparedness plan. If a station has no activities under R4.5, the station will have no personnel that can be identified as a training audience for R5. Stations may not have freeze protection measures due to factors such as geography, plant design, or an ECWT value above 32oF. Based on the current wording of R5 and comments made by the Project 2021-07 team, stations without actions under R4.5 would still be required to identify and train personnel that do not exist.

3. To efficiently implement compliance requirements for NERC Standard EOP-012-2, please publish the final version of EOP-012-2 RSAW at least 60 days prior to the proposed EOP-012-2 effective date of October 1, 2024.

Likes 0

Dislikes 0

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer

Document Name

Comment

The MRO NSRF has no comments.

Likes 0

Dislikes 0

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	
Document Name	

Comment

We appreciate the drafting team revising the generator cold weather critical component term to exclude components or systems located inside a heated permanent building. For hydraulic generating units this encompasses most, if not all, of the generating components except for GSU’s (and potentially generator breakers) located outside the powerhouse.

R1, 1.2 uses the term generating units cold weather data to include operating limitations in cold weather and generating units minimum design/operating temperature. With the hydraulic generator being inside a powerhouse the inside ambient temperature is significantly different than the outside ambient temperature. If none of the “generating unit” is outside how do these calculations help the transmission system planners and operators? If just the GSU is outside, then we are doing all this work to prove the transformer can operate outside in cold weather. In Canada, cold weather is not abnormal during winter months and is typical operating conditions. For example, the daily minimum temperature is below zero degrees for our generating units for more than half of the year in 2022. This requirement appears to create more work for the GO without additional benefits to the system planning and operating authority. The technical rational focuses on wind and precipitation as a factor but on the other side does not consider if it is inside and the outdoor ambient temperature has no effect.

In section R1 1.2.2 are all 3 bullets required? Design temp, historical operating temp & engineering analysis? M1 paragraph seems to indicate design or operating or engineering analysis that supports the unit minimum temperature. Consider adding an “or” after the first bullet point in R1 1.2.2 section

For the extreme cold weather temperature, is there any consideration if a GO operates annually around this temperature? Is there an allowance/bandwidth of calculated extreme cold weather temperature that would not prompt updating the cold weather preparedness plan? If it is only 1 degree lower than the previous calculated, it is hard to imagine that any cold weather protective measures and plans would need to be updated. Operating in cold weather is normal operation for our utility. For example, the ECWT is -37.0 °C (-34.6 °F) for our south generating units, and -40.0 °C (-40.0 °F) for our north generating units. The cold weather protective measures and plans are the same for these units.

R3. Again this seems like a lot of work for a hydraulic generating unit that is entirely inside. Even if the GSU is outside it appears this will just be a documentation exercise. Again we operate in (extreme) cold weather annually.

R4. Appears to be a lot of documentation for a hydraulic generating unit especially if it has no cold weather critical components. Extra administration and documentation without increased reliability. As mentioned before, our generating units are operating below 32 degrees Fahrenheit (zero degrees Celsius) for more than half of the time in a year. Cold weather operation in winter is our normal operation. It significantly increases compliance costs if documentation is required for cold weather preparedness plans because they are embedded in the well developed and practiced maintenance and operation procedures. There is a risk of reducing reliability if the routines are broken when trying to reorganize the maintenance and operation procedures.

R5. Extra costs associated with specific cold weather training that is normal operating duties for our region. Do not see this as a way to increase reliability.

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Jeffrey Streifling - NB Power Corporation - 1

Answer	
Document Name	

Comment
We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather "applicable generating units".   In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement. Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of "fixed fuel supply component". Please add an "or" after the first bullet in R1, section 1.2.2. We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area: Requirement 1.1.1 states: *"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]"* It is suggested to add "if required" or similar wording to the requirement: *"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan, if required, under Requirement R4 […]"* The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden. R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration. R4: We don't have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the

requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice.

Likes 0	
Dislikes 0	

Response

Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5

Answer	
Document Name	

Comment

We support Hydro Quebec's comments:

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather “applicable generating units”. In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of “fixed fuel supply component”.

Please add an “or” after the first bullet in R1, section 1.2.2.

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

Requirement 1.1.1 states:

“If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]”

It is suggested to add “if required” or similar wording to the requirement:

“If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan, if required, under Requirement R4 […]”

The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden.

R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4: We don’t have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments.

EOP-012-2 is the latest revision of the Extreme Cold Weather Preparedness and Operations standard, whose previous version was not approved for implementation; FERC directed NERC to revise the existing EOP-012-1. Extreme Cold Weather Preparedness and Operations standard is therefore a new standard.

The proposed EOP-012-2 must be designed from the start to apply throughout North American BES, without the need of an additional reliability standard. EOP-012-2 should not be based on a single geographic or regional model but should consider geographic variations in grid characteristics, terrain, weather, and other such factors.

For example, in the regions where close to the extreme temperatures are reached almost every cold weather season, the existing adequate winterization/training captured in various procedures, operating instructions, and specific station design, already addresses these challenges as proven by the operating history of those entities. This is not the result of a reliability standard; it is a sine qua non condition to be able to operate in such a cold climate, and this ability is being tested almost every year, during the cold season.

There is no reliability gap for such area of the BES where the Extreme Cold Weather temperatures are the norm, where the entities have adequate winterization /training in place, as opposed to the regions where entities have less than adequate winterization measures, or no winterizations measures at all being implemented.

It is in those regions, that the co-occurrence of cold weather events results in equipment and electric system thermal, voltage, and stability limits to be reached, triggering instability, uncontrolled separation, or cascading failures, in such way that appropriate planning could not mitigate.

To recognize and account for the above differences, which cannot be adequately addressed through an all-encompassing standard, the SDT must include an exception for Canadian entities whose generating units are already reliably operating in the extreme cold weather, as proven by the operating history, therefore avoiding the undue compliance burden.

This is considered part the scope of a SDT developing a new standard, and there shall be no implied expectation of a SAR to be initiated to remind us that NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American Bulk Power Systems, which should address the geographic variations in grid characteristics, as relates to weather, in a cost effective manner.

PRC-012-2 Draft 2 requirements are an unjustified burden for those entities already successfully operating reliably in a cold climate, without additional benefit to reliability and unnecessary for those existing entities' support provided for Reliable Operation of the Bulk Power System.

PRC-012-2 Draft 2 fails to adequately meet the reliability principles that define the foundation of reliability for North American Bulk Power Systems like:

- As written this standard is designed for geographical/regional model with entities without adequate winterization measures in place yet is blanketly applied throughout the NERC regions, without considering the weather operating history, and regardless how this affects the need for Reliability Standard Requirements.
- As written this standard is not destined to achieve its reliability goal effectively and efficiently, due to disregard of unnecessary implementation cost for entities already operating reliably in a cold climate
- The ERO would have a hard time explaining the additional compliance burden balancing with respect to vital public interest, given the latest draft standard, where such standard requirements are unwarranted. Cold weather preparedness should not render the energy price prohibitive for the end user.

PRC-012-2 wording should clearly delineate water from fuel category from the perspective of Extreme Cold Weather Preparedness and Operations standard. Fuel can be considered a substance that produces useful amount of energy when it undergoes a chemical or nuclear reaction. This will eliminate any standard scope inclusion of fixed fuel component associated with water for the hydro units.

Creating and maintaining a separate set of documents or all-encompassing document for the sole purpose of compliance with standard EOP-012 should not be the purpose of this standard (i.e., audit easiness) as long as the separate procedure/operating instructions covers adequately the entities' performance in cold weather operating conditions (as proven by the operating history).

We are equally responsible for BES reliability. EOP-012-2 may create inconsistencies or conflicts with other NERC Reliability Standards, such as BAL-002-3 (Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event), which requires Balancing Authorities to maintain contingency reserves to respond to disturbances.

Latest draft EOP_012-2 will impose additional costs and burdens on Generator Owners to develop, implement, and maintain or enhance their extreme cold weather plans, together with their additional costs and burdens associated with the compliance evidence collection/retention; these undue costs and burdens are particularly evident for the entities already operating reliably in cold climate.

EOP-012-2 places the onus entirely on the GO/GOP and may not adequately address the root causes or contributing factors of the February 2021 Event, such as fuel supply issues, natural gas infrastructure limitations, interconnection coordination challenges, or communication and situational awareness gaps.

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather "applicable generating units".   In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of "fixed fuel supply component".

Please add an "or" after the first bullet in R1, section 1.2.2.

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

Requirement 1.1.1 states:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]"

It is suggested to add "if required" or similar wording to the requirement:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan, if required, under Requirement R4 […]"

The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden.

R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4: We don’t have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice.

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	
Document Name	

Comment

N/A

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	
Document Name	
Comment	
No additional comments.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	
Document Name	
Comment	
NRG would like clarification regarding training of maintenance personnel performing inspection activities. Is it the intent of the SDT to ensure that all personnel, including vendors that do preliminary inspections and/or repairs must train to the specific site plan?	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	

Document Name

Comment

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Likes 0

Dislikes 0

Response

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer

Document Name

Comment

In FERC and NERC’s 2017 Cold Weather report they suggested a three prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA’s and RC’s which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas.

Likes 0

Dislikes 0

Response

Michael Whitney - Northern California Power Agency - 3,4,5,6

Answer

Document Name

Comment

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Likes 0

Dislikes 0

Response

C. A. Campbell - LS Power Development, LLC - 5	
Answer	
Document Name	
Comment	

While it’s clear the Standard Drafting Team made every attempt to align the revisions to the FERC Order, there are key areas that need revisiting.

1) We are concerned with R1.2.2. that requires various data sources that may not provide value.

For older plants, design data at the unit level, despite providing little current operational value, will be difficult if the plant is a group of systems with different manufacturers. Further, this data will be challenging if not impossible to obtain if the plant has changed ownership multiple times. In this situation requiring only an engineering analysis to ascertain current operational cold weather capabilities and readiness is reasonable.

For newer plants with limited wear and tear on components, as an alternative to an engineering analysis, it would be practical to only require design data to establish operational thresholds.

2) We do not agree with the revised definition of Generator Cold Weather Critical Component. We were under the impression the effort was to focus the list to include only critical components exposed to cold weather and could result in a defined ‘event’. Expanding the definition to include dedicated “heating sources” pulls weatherization measures into the list. Where does it end?

3) We don’t agree with the implementation plan and requirements to have CAPs developed by 4/1/2025 with staggered 24 & 48 month completions. As written, the revisions pose an enormous cost and administrative burden.

We can appreciate the challenge of balancing the FERC order against the burdens it will pose to affected Entities. Thank you so much for the opportunity to comment.

Likes 0	
Dislikes 0	
Response	

Brittany Millard - Lincoln Electric System - 5	
Answer	
Document Name	
Comment	

R1.2.2 is confusing as written, clarification is necessary to indicate if the first bullet is mandatory with a choice between second and third bullet or if it is a choice between the 3 bullet points. The word “or” after the first bullet would clarify if that is the intent.

Under R3, FERC rejected a one-hour timing requirement for the existing generating units to operate at the Extreme Cold Weather Temperature (ECWT). Draft 2 of EOP-012-2 now has no time frame that a Generator in operation prior to 2027 should be able to run. As written, this appears to assume that the unit must be able to run indefinitely at the ECWT or Implement freeze protection measure or a Corrective Action Plan to do so, while newer units (post October 2027) are only required to run for a period of 12 hours under R2 at their ECWT combined with a new criteria of wind speed. LES understands that removing the timing requirement from R3 was a purposeful decision by the SDT however, clarification of how long existing generators must be able to run during their ECWT could prevent confusion over potential non compliances.

Likes 0	
Dislikes 0	
Response	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	
Document Name	
Comment	
RF appreciates the continued efforts of the Standard Drafting Team on this project.	
Likes 0	
Dislikes 0	
Response	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	
Document Name	
Comment	
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Likes 0	
Dislikes 0	
Response	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	
Document Name	
Comment	
I would like to see the word "OR" added under 1.2.2 after the first bullet, for clarity.	

Likes 0	
Dislikes 0	

Response

Richard Vendetti - NextEra Energy - 5

Answer	
Document Name	

Comment

Regarding Requirement R4

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);

Objection: Wind turbine blades in certain geographies can be susceptible to icing even when the turbine is experiencing temperatures warmer than the ECWT. Generator Owner requests consideration and flexibility due to these conditions and potential temporary impacts to production.

Likes 0	
Dislikes 0	

Response

Nicolas Turcotte - Hydro-Quebec (HQ) - 1

Answer	
Document Name	

Comment

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather “applicable generating units”. In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of “fixed fuel supply component”.

Please add an “or” after the first bullet in R1, section 1.2.2.

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

Requirement 1.1.1 states:

“If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]”

It is suggested to add “if required” or similar wording to the requirement:

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R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

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Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	

Response

Junji Yamaguchi - Hydro-Quebec (HQ) - 5

Answer	
Document Name	

Comment

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather “applicable generating units”. In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

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Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

It appears that the SDT mentions the Initial Performance of Periodic Requirements in terms of currently registered entities. Assuming the Standard becomes effective October 1, 2024 and an entity is registered October 2, 2027, please clarify when the SDT expects the entity to have performed R1? Prior to commercial operations date or within 5 calendar years of commercial operations date?

The SDT should confer with observing FERC staff to see if Recommendation 1d is covered effectively. Recommendation 1d states “The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and **be completed by no later** than the beginning of the next winter season.” R1 addresses development of a CAP within six (6) months. R2 and R3 have no CAP development time stated. R6 has a development time stated (“..within 150 days or by July 1, whichever is earlier..”). R7’s initiating point is the development of a CAP in R1, R2, R3, or R6 but does not address completion “by no later than the beginning of the next winter season.” The SDT should consider a development time for CAPs developed pursuant to R2 and R3. Furthermore, the SDT should document why the completion timeline is not defined. It is clear that new equipment or freeze protection measure, based on what that might be, could have an extended timeframe, but the language provided allows for ANY new equipment or freeze protection measure to take up to 48 months or longer to be implemented.

The SDT should consider notification of CAPs to those entities relying on generators to be available. An entity could hold a CAP for an extended timeframe, including winter, without any notification as to the readiness for cold weather. An action is not administrative if the action is needed to ensure reliability.

As written, a CAP could have multiple declarations throughout its lifetime depending upon the nature of the CAP. Is it a requirement to make a declaration in conjunction with the CAP (i.e., at the same time) or make the declaration when an action is not going to be implement? In one sense, would a CAP be developed if the constraint could not be mitigated and simply a declaration be made to that effect?

Based on the possibility of a single CAP addressing multiple units, a single unit could be addressed in a declaration. When that occurs, is the expectation of the SDT to require an entity to create a new CAP for the single unit, or modify the CAP to reflect the unit will not meet the CAP but the others will?

For consistency- Adjust R1 Part 1.1.1 last sentence to state "….within six (6) months…"

What is the timetable for updating the cold weather preparedness plan after development of a CAP? Is there an expectation that an update is required if a CAP is developed?

Likes 0	
Dislikes 0	

Response

Tracy MacNicoll - Utility Services, Inc. - 4

Answer	
Document Name	

Comment

The subrequirements of R7.1 should clarify that the actions identified in the CAP are what need to be completed in the time intervals. Not just listing the action items.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf of constellation segments 5 and 6

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5	
Answer	
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	
Document Name	
Comment	
NA	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	
Document Name	
Comment	
PG&E recommends the SDT add the R2 Footnote 2 and R3 Footnote 3 (exemption language for ECWT above 32) to be applicable to R5. If the generator ECWT is greater than 32 and therefore R2 and R3 are not applicable, what would be the objective of having training when there is no capability of freezing? PG&E believes it is imperative to ensure training applies to plant personnel to ensure the focus of personnel and resources is on the highest priorities tasks, and if the ECWT is above 32, there would be no reason for training.	
Likes 0	
Dislikes 0	
Response	

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion

Answer

Document Name

Comment

Requirement 1.2.1 currently requires Generator Owners to identify generating unit operating limitations in cold weather. Dominion Energy is concerned that this could be interpreted to include cold start up timeframes, which are not necessarily operating limitations. Dominion Energy is of the opinion that cold starts during extreme cold weather should not be included as an operating criteria or requirement in the Standard and should be specifically excluded.

Requirement 6 addresses the development of Corrective Action Plans for units that have an Event during extreme cold weather. The proposed version requires the development to occur at the earlier of either 150 days or July 1 after the Event. Dominion Energy is of the opinion that the July 1 date is arbitrary and does not add any reliability benefit, but rather unnecessarily reduces the timeframe to develop for late season extreme cold weather events. Dominion Energy recommends that the July 1 date be removed from the Requirement and that all Corrective Action Plans be given a 150-day timeframe for development.

Likes 0

Dislikes 0

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer

Document Name

Comment

Thank you for the opportunity to Comment.

Likes 0

Dislikes 0

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer

Document Name

Comment

For Requirement R1 Part 1.1.1, it doesn't seem logical to only reference generating units that are subject to Requirement R3. As time progresses, the ECWT re-calculations could identify generating units that are subject to Requirement R2 that need corrective actions as well. We suggest the following wording for the last sentence in R1 Part 1.1.1:

"*If new corrective actions are needed to provide the required operational capability under Requirement* ***R2 or*** *R3, the entity shall develop a Corrective Action Plan* ***in accordance with Requirement R7*** *within 6 months of the recalculation.*"

For Requirement R1 Part 1.2.2, we recommend an "or" be added after the first design temperature bullet if the intent is to allow the GO to utilize either of the three bulleted approaches to identify their generating unit(s) minimum.

We reiterate our comment submitted on Draft 1 that some existing contracts for new units are being delayed past 10/1/27 due to manpower and equipment supply chain issues. These contracts do not necessarily include all the cold weather requirements from this standard. Changing the contracts would at the minimum be expensive and, at the worst, may not be possible. Therefore we suggest the Requirement R2 commercial operation date stipulation be revised to "on or after October 1, 2030". This would also result in the Requirement R3 commercial operation date stipulation being changed to "prior to October 1, 2030".

Likes 0	
Dislikes 0	

Response

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	
Document Name	

Comment

ISO-NE believes that the requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units.

Other Requirements with the CAP allow for the 48 months for upgrades, which would allow for the implementation for new commercial units as well as existing units. Keeping the requirements separate guarantees in 2027 a Standard update will need to occur to remove an outdated requirement.

ISO-NE recommends simplifying the process with R2 and R3 to eliminate future administrative work. These requirements would not fit into the Standards Efficiency Review goals and therefore should be combined.

As stated in previous comments the ECWT is calculated higher than actually experienced temperatures. In some areas the ECWT is 20 degrees or greater higher than actually experienced. PJM provided the data for their region during the FERC filing/commenting period after Phase 1 demonstrating the temperature difference between ECWT and Actual.

In addition to the PJM data ISO-NE has identified multiple areas within New England where ECWT is >20 degrees than actual low temperatures (since 2000). As a good practice, generators have been able to demonstrate operability at the lower temperatures in New England which experiences Cold Weather temperatures with some regularity. As written due to the higher ECWT values than experienced temperatures and the subsequent demonstration of capability during those low temperatures, ISO-NE does not expect many generator freeze protection upgrades to be needed in its area.

Likes 0	

Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	
Document Name	

Comment

Texas RE noticed EOP-012-2 Requirement R1 does not state that the Generator Owner needs to document the calculation and other details included in the requirement. While the measure section states that the GO shall retain data or evidence to support the ECWT,

Texas RE is concerned that not including language to document the activities Requirement R1, could result in inconsistent interpretation of the need for maintaining proper evidence.

In addition, Texas RE suggests revising Requirement R1 for GO to perform the ECWT calculations on **annual** basis instead of every five calendar years, in order to ensure that the most recent and current information is used to prepare unit's cold weather preparedness plan. Performing the calculations every five calendar years could create a long lag time for identifying any incremental reliability improvements if a cold weather event happened immediately after a GO performed its ECWT calculation. Performing the ECWT calculations annually could also help to include any lessons learned from the latest weather event and updating any operating limitations in the annual Generator Cold Weather Constraint declaration under Requirement R8.

Texas RE recommends that Requirement R1 should provide specificity to which data source should be used for calculating ECWT to support standardization and to help with verifying the data during an audit.

Texas RE seeks clarification on whether the reference to Requirement R2 in (1.1.1) was removed intentionally. Texas RE believes that the reference to Requirement R2 shall remain in R1 (1.1.1.). Texas RE recommends the following verbiage:

R1: At least once every five calendar years, Each Generator Owner shall at least annually document, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]

Texas RE noticed that in the Requirement R1, 1.1 'applicable **generating** unit(s)' is changed to 'applicable unit(s). For consistency, Texas RE suggests retaining the reference 'applicable **generating** unit(s)' in Requirement R1, 1.1. Texas RE recommends the following verbiage:

1.1   Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) **using a reliable source of data from a recording location near the plant and** identify the calculation date and source of temperature data; and

Texas RE requests Requirement R5 be clarified to include training for all personnel including contractors that are responsible for implementation and maintenance of the freeze protection measures required to keep the generating unit reliable during extreme cold weather conditions. Texas RE proposes the following verbiage (changes in bold):

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity, **whether its GO or GOP or both**, responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel **including third-party contractors** responsible for implementing the cold weather preparedness plan(s) **and maintaining the freeze protection measures** developed pursuant to Requirement R4.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	
Document Name	

Comment

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather "applicable generating units". In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

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R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4: We don’t have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice.

EOP-012-2 is the latest revision of the Extreme Cold Weather Preparedness and Operations standard, whose previous version was not approved for implementation; FERC directed NERC to revise the existing EOP-012-1. Extreme Cold Weather Preparedness and Operations standard is therefore a new standard.

The proposed EOP-012-2 must be designed from the start to apply throughout North American BES, without the need of an additional reliability standard. EOP-012-2 should not be based on a single geographic or regional model but should consider geographic variations in grid characteristics, terrain, weather, and other such factors.

For example, in the regions where close to the extreme temperatures are reached almost every cold weather season, the existing adequate winterization/training captured in various procedures, operating instructions, and specific station design, already addresses these challenges as proven by the operating history of those entities. This is not the result of a reliability standard; it is a sine qua non condition to be able to operate in such a cold climate, and this ability is being tested almost every year, during the cold season.

There is no reliability gap for such area of the BES where the Extreme Cold Weather temperatures are the norm, where the entities have adequate winterization /training in place, as opposed to the regions where entities have less than adequate winterization measures, or no winterizations measures at all being implemented.

It is in those regions, that the co-occurrence of cold weather events results in equipment and electric system thermal, voltage, and stability limits to be reached, triggering instability, uncontrolled separation, or cascading failures, in such way that appropriate planning could not mitigate.

To recognize and account for the above differences, which cannot be adequately addressed through an all-encompassing standard, the SDT must include an exception for Canadian entities whose generating units are already reliably operating in the extreme cold weather, as proven by the operating history, therefore avoiding the undue compliance burden.

This is considered part the scope of a SDT developing a new standard, and there shall be no implied expectation of a SAR to be initiated to remind us that NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American Bulk Power Systems, which should address the geographic variations in grid characteristics, as relates to weather, in a cost effective manner.

PRC-012-2 Draft 2 requirements are an unjustified burden for those entities already successfully operating reliably in a cold climate, without additional benefit to reliability and unnecessary for those existing entities’ support provided for Reliable Operation of the Bulk Power System.

PRC-012-2 Draft 2 fails to adequately meet the reliability principles that define the foundation of reliability for North American Bulk Power Systems like:

{C}Ø As written this standard is designed for geographical/regional model with entities without adequate winterization measures in place yet is blanketly applied throughout the NERC regions, without considering the weather operating history, and regardless how this affects the need for Reliability Standard Requirements.

{C}Ø As written this standard is not destined to achieve its reliability goal effectively and efficiently, due to disregard of unnecessary implementation cost for entities already operating reliably in a cold climate

{C}Ø The ERO would have a hard time explaining the additional compliance burden balancing with respect to vital public interest, given the latest draft standard, where such standard requirements are unwarranted. Cold weather preparedness should not render the energy price prohibitive for the end user.

PRC-012-2 wording should clearly delineate water from fuel category from the perspective of Extreme Cold Weather Preparedness and Operations standard. Fuel can be considered a substance that produces useful amount of energy when it undergoes a chemical or nuclear reaction. This will eliminate any standard scope inclusion of fixed fuel component associated with water for the hydro units.

Creating and maintaining a separate set of documents or all-encompassing document for the sole purpose of compliance with standard EOP-012 should not be the purpose of this standard (i.e., audit easiness) as long as the separate procedure/operating instructions covers adequately the entities’ performance in cold weather operating conditions (as proven by the operating history).

We are equally responsible for BES reliability. EOP-012-2 may create inconsistencies or conflicts with other NERC Reliability Standards, such as BAL-002-3 (Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event), which requires Balancing Authorities to maintain contingency reserves to respond to disturbances.

Latest draft EOP_012-2 will impose additional costs and burdens on Generator Owners to develop, implement, and maintain or enhance their extreme cold weather plans, together with their additional costs and burdens associated with the compliance evidence collection/retention; these undue costs and burdens are particularly evident for the entities already operating reliably in cold climate.

EOP-012-2 places the onus entirely on the GO/GOP and may not adequately address the root causes or contributing factors of the February 2021 Event, such as fuel supply issues, natural gas infrastructure limitations, interconnection coordination challenges, or communication and situational awareness gaps.

Likes 0	
Dislikes 0	

Response

Teresa Krabe - Lower Colorado River Authority - 5	
Answer	
Document Name	
Comment	
None at this time.	
Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	
Document Name	
Comment	
Southern wished to thank the SDT for their efforts to provide adequate requirements that provide meaningful requirements that are balanced and reasonable.	
Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	
The NAGF has no additional comments.	
Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer

Document Name

Comment

Thank you for the opportunity to comment.

Likes 0

Dislikes 0

Response

Ruchi Shah - AES - AES Corporation - 5

Answer

Document Name

Comment

AES Clean Energy strongly recommends that either NERC, the Standard Drafting Team or a group of industry experts representing various generator types develop implementation guidance or CMEP Practice Guide for EOP-012-2. This will help alleviate issues regarding interpretation of the requirement language as it pertains to each type of generator.

Likes 0

Dislikes 0

Response

Colin Chilcoat - Invenergy LLC - 6

Answer

Document Name

Comment

None

Likes 0

Dislikes 0

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	
Document Name	
Comment	

The SRC appreciates the drafting team's work in revising EOP-012 to address the directives from FERC, but as further detailed below, the SRC believes that additional revisions are needed to fully address FERC's directives.

Clarify Ambiguity in Requirement R1

The SRC notes that the reference to Requirement R2 has been removed from R1.1.1. The SRC believe that it is important for R1.1.1 to address both Requirement R2 and Requirement R3; the SRC therefore recommends that the reference to Requirement R2 be reinserted in R1.1.1.

Remove ambiguity from Applicability provisions - FERC has directed that the standard should apply to all BES generation resources needed for reliable operation and exclude only those generation resources not relied upon during freezing conditions. The SRC agrees with the proposed revisions to the Applicability section of the Standard and requests that Requirements R2, R3, and R6 be revised to replace "self-commits or that is required to operate" with "that may be committed to operate" and that footnotes 2, 3, and 5 be removed or revised. The SRC believes these modifications are required to meet the FERC directive regarding the universe of units to which EOP-012 should apply. Without these revisions, Requirements R2, R3, and R6 and footnotes 2, 3, and 5 appear to allows unit(s) needed for reliable operation to be exempt from meeting the Requirements to implement freeze protection measures and develop a CAP as needed. The SRC believes that removing footnotes 2, 3, and 5 is the best way to meet the FERC directive, but proposes that the language contained in footnotes 2, 3, and 5 be reworded to read as follows in the event the drafting team elects to keep these footnotes in EOP-012:

Generating unit(s) that were intentionally designed for limited operation in the summer season, but may operate on a "best efforts" basis during the winter season when needed in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Add timing specificity for required inspections & maintenance - The SRC recommends that Requirement R4, Part 4.5 be revised to require inspections and maintenance of all units on "at least an annual basis, and always within three months of the upcoming winter season." This request is due to past and current findings in which the GO/GOP did not initiate inspection and maintenance early enough or prior to winter and was consequently not prepared for cold weather operations in a timely manner.

Ensure sufficient data provision to BAs - Phase II of the Cold Weather Recommendations in FERC's report on Winter Storm Uri indicated in its discussion of TOP-003-5 in Key Recommendation 1g that the Reliability Standards should be revised to provide greater specificity about the relative roles of the Generator Owners, Generator Operators, and Balancing Authorities in determining the generating unit capacity that can be relied upon during "local forecasted cold weather." Key Recommendation 1g further indicated that "Based on its understanding of the 'full reliability risks related to the contracts and other arrangements [Generator Owners/Generator Operators] have made to obtain natural gas commodity and transportation for generating units,' each Generator Owner/Generator Operator should be required to provide the Balancing Authority with data on the percentage of the generating unit's capacity that the Generator Owner/Generator Operator reasonably believes the Balancing Authority can rely upon during the 'local forecasted cold weather.'" Given the importance of this information, the SRC requests that EOP-012-2 include a Requirement that clearly requires the GO/GOP to provide Real-time derate/outage data to its BA in order for the BA to have accurate and timely knowledge of operating reserves and situational awareness of unplanned unit constraints as a result of the extreme cold weather. While this information is currently included in BA data specifications, adding a dedicated Requirement addressing this topic is appropriate given the importance of outage reporting to the BA during extreme cold weather conditions and the importance of Key Recommendation 1g of the *Report.*

Combine Requirements R2 and R3 - The SRC also disagrees that the enhanced cold weather requirements that are contained within Requirement R2 should be limited to units that enter commercial operation after October 1, 2027. Requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units and only allows CAPs for units that achieved commercial operations before October 1, 2027. The Generator Cold Weather Constraint declaration process and the Corrective Action Plan process within EOP-012 provide sufficient accommodation for existing units. Adopting the SRC's proposal would require more thorough weatherization of generation units, resulting in a more reliable and performant BES during extreme cold weather conditions.

Revisit disposition of prior SRC comments - Finally, the SRC disagrees with the SDT's disposition of our comments submitted in response to **Phase 2 - Draft 1 of EOP-012-2**. We ask the SDT to reconsider our recommendations. Consideration of Comments.

Likes 0	
Dislikes 0	

Response

Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro

Answer	
Document Name	

Comment

1. The addition of "impacts of freezing precipitation" in the Generator Cold Weather Reliability Event may result in additional constraints to the CAP implementation timelines for northern utilities. Although BC's coldest weather months are December – February, the inclusion of freezing precipitation impacts may result in EOP-012 events well into the Spring calendar months (March, April, or even May in extreme conditions) in British Columbia, which – given the July 1 deadline – will add considerable burden in timely completion of the CAP in the context of Requirement R6.

BC Hydro recommends that the wording of the Requirement R6 be changed to allow up to 150 calendar days in cases where the July 1 is not be feasible for events later in the year.

2. The wording "for each of its applicable unit(s)" in Requirement R1 Part 1.1 appears redundant as the applicability to "each of its applicable generating unit(s)" is already specified in the main part of R1. Recommend removing it from Part 1.1.

3. Requirements R2 and R3 include three different descriptors applied to "freeze protection measures":

- "freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability";
- "freeze protection measures to provide the capability"; and
- "freeze protection measures that provide the capability"

Without a definition for “freeze protection measure” or a consistent language, the intention of the freeze protection measure may be interpreted differently.

BC Hydro recommends revising the wording for consistency or provide a stand alone definition of the “freeze protection measure”.

4. Per Requirement R3, for generating units in commercial operation prior to October 1, 2027 there will not be an expectation to have the capability to operate at ECWT for 12 continuous hours or max operational duration for intermittent energy resources. This appears to be supported by the requirement R3 section of the Technical Rationale: “to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3 as to not create an unreasonable compliance obligation.” Please confirm if this understanding is accurate.

Likes 0	
Dislikes 0	

Response

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments

Project Name:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination - Phase 2 | Draft 2 EOP-012-2
Comment Period Start Date:	10/27/2023
Comment Period End Date:	11/30/2023
Associated Ballot(s):	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll AB 2 NB 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 AB 2 ST 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 AB 2 OT

There were 71 sets of responses, including comments from approximately 167 different people from approximately 113 companies representing 10 of the Industry Segments as shown in the table on the following pages.

All comments submitted can be reviewed in their original format on the project page.

If you feel that your comment has been overlooked, let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, contact Vice President of Engineering and Standards, Soo Jin Kim (via email) or at (404) 446-9742.

Questions

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition to utilize "good utility practice" which has a common understanding as used in the pro forma OATT as approved by FERC. Good utility practice encompasses the three examples previously proposed and additional context is provided in the Technical Rationale. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

2. Based upon industry comments received, the SDT has re-structured R2 to require generating units to either implement appropriate freeze protection measures or develop a CAP. Do you agree that the revised language provides sufficient clarity? If not, please provide suggested clarifying language.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

3. In order to meet the FERC directive and reduce reliability risks more quickly, the SDT added new Requirement R7 Part 7.1.3 *"For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units."* Do you agree with this proposed language? If you do not agree, please provide your recommended language.

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4. Do you agree that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority thereby providing the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical, or procedural justification.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.do

5. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. Do you agree with this proposed timeframe? If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

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6. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

7. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

The Industry Segments are:

1 — Transmission Owners

2 — RTOs, ISOs

3 — Load-serving Entities

4 — Transmission-dependent Utilities

5 — Electric Generators

6 — Electricity Brokers, Aggregators, and Marketers

7 — Large Electricity End Users

8 — Small Electricity End Users

9 — Federal, State, Provincial Regulatory or other Government Entities

10 — Regional Reliability Organizations, Regional Entities

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
BC Hydro and Power Authority	Adrian Andreoiu	1	WECC	BC Hydro	Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
MRO	Anna Martinson	1,2,3,4,5,6	MRO	MRO Group	Shonda McCain	Omaha Public Power District (OPPD)	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
					Jay Sethi	Manitoba Hydro (MH)	1,3,5,6	MRO
					Jaimin Patal	Saskatchewan Power Corporation (SPC)	1	MRO
					Kimberly Bentley	Western Area Power Adminstration	1,6	MRO

					Marc Gomez	Southwestern Power Administration (SWPA)	1	MRO
					Fred Meyer	Algonquin Power Co.	3	MRO
					George Brown	Pattern Operators LP	5	MRO
					Larry Heckert	Alliant Energy (ALTE)	4	MRO
					Terry Harbour	MidAmerican Energy Company (MEC)	1,3	MRO
					Bryan Sherrow	Board Of Public Utilities (BPU)	1	MRO
					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
					Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Michael Ayotte	ITC Holdings	1	MRO
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF
					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF

					David Boeshaar	WEC Energy Group, Inc.	6	RF
Dane Rogers	Dane Rogers			OG&E	Terri Pyle	OGE Energy - Oklahoma Gas and Electric Co.	1	MRO
					Donald Hargrove	OGE Energy - Oklahoma Gas and Electric Co.	3	MRO
					Patrick Wells	OGE Energy - Oklahoma Gas and Electric Co.	5	MRO
					Ashley F Stringer	OGE Energy - Oklahoma Gas and Electric Co.	6	MRO
ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Kris Carper	Arizona Electric Power Cooperative, Inc.	1	WECC
					Scott Berry	Wabash Valley Power Association	3,4	RF

					Nikki Carson-Marquis	Minnkota Power Cooperative, Inc.	1	MRO
					Scott Berry	Wabash Valley Power Association	3,4	RF
					Bill Pezalla	Old Dominion Electric Cooperative	3,4	SERC
					Scott Brame	North Carolina Electric Membership Corporation	3,4,5	SERC
					Teresa Czyz	Oglethorpe Power Corporation	5,6	SERC
					Kylee Kropp	Sunflower Electric Power Corporation	1	MRO
					Jordan Mcclellan	Southern Illinois Power Cooperative	1	SERC
Entergy	Julie Hall	6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC

Electric Reliability Council of Texas, Inc.	Kennedy Meier	2		ISO/RTO Council Standards Review Committee (SRC)	Bobbi Welch	Midcontinent ISO, Inc.	2	NA - Not Applicable
					Darcy O'Connell	California ISO	2	WECC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Kennedy Meier	Electric Reliability Council of Texas, Inc.	2	Texas RE
					Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	NA - Not Applicable
					Thomas Foster	PJM Interconnection, L.L.C.	2	RF
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF

					Mark Garza	FirstEnergy-FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Southern Company - Southern Company Services, Inc.	Pamela Hunter	1,3,5,6	SERC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					Leslie Burke	Southern Company - Southern Company Generation	5	SERC
Public Utility District No. 1	Rebecca Zahler	5		CHPD Voters	Joyce Gundry	Public Utility District No. 1 of Chelan County	3	WECC

of Chelan County					Anne Kronshage	Public Utility District No. 1 of Chelan County	6	WECC
					Diane E Landry	Public Utility District No. 1 of Chelan County	1	WECC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC
					Jeffrey Streifling	NB Power Corporation	1	NPCC
					Michele Tondalo	United Illuminating Co.	1	NPCC
					Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
					Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
					Randy Buswell	Vermont Electric Power Company	1	NPCC

James Grant	NYISO	2	NPCC
John Pearson	ISO New England, Inc.	2	NPCC
Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
Randy MacDonald	New Brunswick Power Corporation	2	NPCC
Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
David Burke	Orange and Rockland	3	NPCC
Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
Salvatore Spagnolo	New York Power Authority	1	NPCC
Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
David Kwan	Ontario Power Generation	4	NPCC

					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Sean Cavote	PSEG	4	NPCC
					Jason Chandler	Con Edison	5	NPCC
					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					Joshua London	Eversource Energy	1	NPCC
Dominion - Dominion	Sean Bodkin	6		Dominion	Connie Lowe	Dominion - Dominion Resources, Inc.	3	NA - Not Applicable

Resources, Inc.					Lou Oberski	Dominion - Dominion Resources, Inc.	5	NA - Not Applicable
					Larry Nash	Dominion - Dominion Virginia Power	1	NA - Not Applicable
					Rachel Snead	Dominion - Dominion Resources, Inc.	5	NA - Not Applicable
Stephen Whaite	Stephen Whaite		RF	ReliabilityFirst Ballot Body Member and Proxies	Lindsey Mannion	ReliabilityFirst	10	RF
					Stephen Whaite	ReliabilityFirst	10	RF
Western Electricity Coordinating Council	Steven Rueckert	10		WECC Entity Monitoring	Steve Rueckert	WECC	10	WECC
					Phil O'Donnell	WECC	10	WECC
Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC

					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition to utilize "good utility practice" which has a common understanding as used in the pro forma OATT as approved by FERC. Good utility practice encompasses the three examples previously proposed and additional context is provided in the Technical Rationale. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	

Avista does not support the use of the phrase "good utility practice" because it is not clear or auditable. Avista further notes that the phrase "good utility practice" is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard. Additionally, the inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance."

Regarding auditability, the vagueness of terms included in the definition of "good utility practice" such as "significant portion" and "reasonable cost" allow for a broad range of interpretations regarding what may or may not constitute "good utility practice".

We recommend that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process.

Likes 0

Dislikes 0

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Donald Lock - Talen Generation, LLC - 5

Answer No

Document Name

Comment

The Good Utility Practice (GUP) criterion of EOP-012-2 may at times be non-auditable because the, “methods and acts engaged in or approved by a significant portion,” of GO/GOPs in deregulated areas often derive from market forces and can therefore differ from the approach appropriate for achieving NERC’s BES reliability goals.

It has been reported for example that many wind farm owners in warm parts of the country declined OEMs’ standard winterization options because doing so achieved their “desired result” (profit maximization) in a fashion consistent with their concept of reliability (achieving just a few extra hours of operation wasn’t worth the cost). This meets the GUP definition, forcing NERC to apply an ex post facto “Bad GUP” classification.

The same negative outlook ought to apply for the widespread under-designing of heat tracing and insulation systems in the deregulation era; but, as discussed later in these comments, NERC has chosen to enshrine this as “Good GUP.”

Unpredictable Good GUP vs Bad GUP divergences are therefore already occurring, and more of the same can be expected. Can an emerging winter reliability technology that gains substantial acceptance overseas be deemed Not-GUP for North America simply because prospective users here refuse to adopt it? Any public policy goals wanted by NERC need to be spelled-out, rather than assuming that they will automatically coincide with the path taken by an industry under the lash of economic competition.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

See comments submitted by the Edison Electric Institute for Duke Energy’s official response.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	No
Document Name	

Comment

MRO NSRF does not agree that the use of "good utility practice" provides sufficient clarity or is auditable and contends that the phrase is unsuitable for use in a reliability standard as currently proposed. The phrase "good utility practice" is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on impact to this reliability standard. Additionally, inclusion of this term runs contrary to NERC Rules of Procedure Section 302.6 which states *"Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance."* This is also an important consideration for Canadian entities that fall outside of FERC jurisdiction. These entities would need to create their own definition of the term and this could create confusion for auditors with different meanings in different jurisdictions.

Regarding auditability, the vagueness of terms included in the definition of "good utility practice" such as "significant portion" and "reasonable cost" allow for a broad range of interpretations of what may or may not constitute "good utility practice". MRO NSRF appreciates the Standard Drafting Team's efforts on this subject; however, MRO NSRF recommends that the Standard Drafting Team either revert to the language in EOP-012-1 which was in line with NERC rules of procedure and approved by the Registered Ballot Body and NERC Board of Trustees or revert to the proposed definition for Generator Cold Weather Constraint as defined in Phase 2, Draft 1 of EOP-012-2 with the updated language as proposed below and incorporate the currently proposed reference to "good utility practice" in the technical rationale.

Generator Cold Weather Constraint(s) – A limitation**, as determined by the applicable entity,** that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas:

Technical Constraint – A technical constraint exists when there is no known **proven** technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications.

Commercial Constraint - A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation.

Operational Constraint – An operational constraint exists when implementation of selected freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments. Utility practice is specific to each utility geographical location. Good utility practice is a matter of perception, therefore it's vagueness in respect to this very fluid standard cannot be accurately audited beyond a reasonable doubt. Will "Good enough" receive the seal of approval from the auditors, based on existing practices, if the generating unit has operated from 2000 onward, through the Extreme Cold Weather Temperature without a Generator Cold Weather Reliability Event?	
Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	
Response	

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
Although the concept of good utility practice to replace the 3 constraints originally proposed is more appropriate and relevant to use, NRG still believes that the terminology is too generic and open, thus making it too ambiguous and subjective for auditing purposes. However, Inclusion of the examples in the Technical Rationale document does provide better guidance for determination of what may be considered in scope.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	
Comment	
We do not support the use of the phrase “good utility practice” because it is not clear or auditable. We further note that the phrase “good utility practice” is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process	

or consideration on the impact to any NERC Reliability Standard. Additionally, the inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance." Regarding auditability, the vagueness of terms included in the definition of "good utility practice" such as "significant portion" and "reasonable cost" allow for a broad range of interpretations regarding what may or may not constitute "good utility practice". We recommend that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process.	
Likes 0	
Dislikes 0	
Response	
Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
Although the concept of good utility practice to replace the 3 constraints originally proposed is more appropriate and relevant to use, NRG still believes that the terminology is too generic and open, thus making it too ambiguous and subjective for auditing purposes. However, inclusion of the examples in the Technical Rationale document does provide better guidance for determination of what may be considered in scope.	

Likes 0	
Dislikes 0	
Response	
Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
: Avista does not support the use of the phrase "good utility practice" because it is not clear or auditable. Avista further notes that the phrase "good utility practice" is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard. Additionally, the inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance." Regarding auditability, the vagueness of terms included in the definition of "good utility practice" such as "significant portion" and "reasonable cost" allow for a broad range of interpretations regarding what may or may not constitute "good utility practice". We recommend that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process.	
Likes 0	
Dislikes 0	
Response	

Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

NO.   We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.

Likes 0

Dislikes 0

Response

Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Michael Whitney - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.

Likes 0

Dislikes 0

Response

Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	
Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Richard Vendetti - NextEra Energy - 5	
Answer	No
Document Name	
Comment	
The term "auditable" in the question is concerning. The suggested "good utility practice" language lacks clarity on when freeze protection is justified. I recommend the SDT include more specific language in the standard to guide utilities in decision-making and documentation needed to thoroughly respond to audits.	
Likes 0	
Dislikes 0	

Response	
Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We do not support the use of the phrase “good utility practice” because it is not clear or auditable	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No
Document Name	
Comment	
We do not support the use of the phrase “good utility practice” because it is not clear or auditable	
Likes 0	
Dislikes 0	

Response	
Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	No
Document Name	
Comment	
The use of "good utility practice" is too vague and leaves room for the auditor and the entity to disagree on what is a resonable constraint. Recommend putting in the three constraints from the previous draft back in and defining them.	
Likes 0	
Dislikes 0	
Response	
Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Daniel Gacek - Exelon - 1	
Answer	No
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Kinte Whitehead - Exelon - 3	
Answer	No
Document Name	
Comment	
Exelon is supporting EEI response to this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	
Comment	
Tri-State does not agree with the term "good utility practice" as it does not provide clarity and would not be auditable. The term "good utility practice" is broad and will bring many different iterpretations. Tri-State recommends reverting back to the original language: **PREVIOUS DEFINITION:** Generator Cold Weather Constraint - A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Components. A constraint must fall under one of the following areas:	

• Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of selected freeze protection measure(s) requires application of new technologies or existing technologies in new applications that would facilitate operations outside of the existing equipment specifications. Technical constraints include technologies that have not been demonstrated for a sufficient period of time in like assets in the BES. • Commercial Constraint – A commercial constraint exists when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would result in the generating unit not operating or not being put into service at the time of the evaluation. • Operational Constraint – An operational constraint exists when implementation of selected freezeprotection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike	
Answer	No
Document Name	
Comment	
Tacoma Power supports the MRO NSRF comments.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	No
Document Name	
Comment	
Minnesota Power supports MRO’s NERC Standards Review Forum’s (NSRF) comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Helen Lainis - Independent Electricity System Operator - 2	
Answer	No
Document Name	
Comment	
The 3 examples and the context in the Technical Rationale sets a tighter set of criteria. When filing for regulatory approval, we strongly recommend that NERC request FERC to explicitly review of the Technical Rationale examples and whether this boundary set around "good utility practice' is stringent enough to avoid from having generators opt out of freeze protection measures.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	No
Document Name	
Comment	
Dominion Energy supports EEI comments and is firmly of the opinion that good utility practice should be defined in the Standard rather than in the technical rationale, which carries no weight when compliance is being evaluated. Dominion Energy is of the opinion that to ensure this definition is adhered to by NERC and regional auditors, it should be specifically referenced in the Reliability Standard, possibly by simply adding "…using good utility practice, as defined in the FERC *pro forma* OATT,…" to the current definition.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	

AEPC has signed on to ACES comments:

We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however we have grave concerns with the use of the phrase “good utility practice” in the definition of “Generator Cold Weather Constraint”. While the term may have a common understanding, this does not automatically mean it is suitable for inclusion in a NERC Reliability Standard. It is our opinion that this newly introduced language is fraught with compliance concerns.
Firstly, it is our opinion that there are several undefined terms and phrases within the term “good utility practice” that are not auditable without further definition and clarification. For instance,
please see the following list and our concern with each:
•
“engaged in or approved by a significant portion”
o
What portion of the electric utility industry is to be considered significant?
o
Which entity will be responsible for determining which practices, methods, and activities the industry is engaged in?
o
Which entity will be responsible for determining which practices, methods, and activities are approved by the industry and how will this approval be obtained?
•
“relevant time period”
o
What time period is considered relevant to Generator Cold Weather Constraints?
•
“reasonable judgment” and “reasonable cost”
o

Use of the phrase “reasonable” may have precedent in a court of law; however, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME’s may not be, nor are expected to be, lawyers. Thus, additional clarity is needed to determine what should be or should not be considered reasonable.

•
“consistent with good business practices, reliability, safety and expedition”
o
Which entity will be responsible for determining which business practices are “good”?
o
Is not the intent of the NERC Reliability Standards to increase reliability across the industry? If so, it seems more than a bit strange to include a stipulation that an entity may have a constraint that would preclude their compliance with a Reliability Standard Requirement because doing so would not be consistent with reliability.
•
“generally accepted in the region”
o
Which entity will be responsible for objectively determining the various “regions” and in which “region” a given generating station is located?
▪
For example, should region be defined as the Reliability Coordinator Area or the Balancing Authority Area? If so, this would ignore the potentially large variability in both climate and Extreme Cold Weather conditions throughout both areas.
▪
Perhaps it would be more appropriate to define region as a given geographical area? However, this approach presents new and completely different challenges.
•

Weather can often be quite distinct even when considering two locations in close proximity to one another. For example, the various “snowbelts” in the United States and Canada that receive copious amounts of “lake effect” snow each year.

Lastly, in general, we disagree with the use of any defined term within a Reliability Standard that is not defined by NERC and is not included in the NERC Glossary of Terms. In this specific instance, what will the compliance implications be if FERC chooses to modify the definition of “good utility practice” in a future revision of the pro forma OATT?

ACES recommends that the SDT instead work to refine the previous definition of “Generator Cold Weather Constraint” by taking into further consideration prior industry comments on the previously proposed definition. We recommend utilizing language similar to the following:

Generator Cold Weather Constraint(s) – A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components. A constraint must fall under one of the following areas:

•

Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technologies, or existing technologies in new applications, that would facilitate operations outside of the existing equipment specifications.

•

Commercial Constraint - A commercial constraint exists when implementation of suitable freeze protection measures is uneconomical to the extent that it would impact the availability or operational tempo of the generating unit(s).

•

Operational Constraint – An operational constraint exists when implementation of suitable freeze protection measure(s) would cause the generating unit to limit its

operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE support the SRC Comments: ISO reiterates the SRC belief that the use of "good utility practice" along with the examples given in the Technical Rationale is not sufficient. ISO-NE agrees that any declared constraints **shall** be reported to NERC and/or the Regional Entity for purposes of compiling a best practices document, such as a new Reliability Guideline.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	No
Document Name	
Comment	
AZPS does not agree with using “good utility practice” without it being defined in the Reliability Standard. AZPS supports EEI’s comment to include the definition in the Reliability Standard so the Standard will not depend on an external definition.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	

Utility practice is specific to each utility geographical location. Good utility practice is a matter of perception, therefore it's vagueness in respect to this very fluid standard cannot be accurately audited beyond a reasonable doubt. Will "Good enough" receive the seal of approval from the auditors, based on existing practices, if the generating unit has operated from 2000 onward, through the Extreme Cold Weather Temperature without a Generator Cold Weather Reliability Event?

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with utilizing the term "good utility practice" as it is not currently defined in the Standard. "Good utility practice" is a defined phrase within the pro forma Open Access Transmission Tariff (I.1.15) and is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard(s). In addition, the use of this term is contrary to NERC Rules of Procedure Section 300.6 which state "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance".

If the definition from Open Access Transmission Tariff is added to the Standard, the vagueness of terms included in the definition (i.e. "significant portion" and "reasonable cost") will make auditing difficult and allow for a broad range of interpretations.

Likes 0	
Dislikes 0	

Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with utilizing the term “good utility practice” as it is not currently defined in the Standard. “Good utility practice” is a defined phrase within the pro forma Open Access Transmission Tariff (I.1.15) and is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard(s). In addition, the use of this term is contrary to NERC Rules of Procedure Section 300.6 which state “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.” If the definition from Open Access Transmission Tariff is added to the Standard, the vagueness of terms included in the definition (i.e. “significant portion” and “reasonable cost”) will make auditing difficult and allow for a broad range of interpretations.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Micah Runner - Black Hills Corporation - 1	
Answer	No

Document Name	

Comment

Black Hills Corporation does not agree with utilizing the term “good utility practice” as it is not currently defined in the Standard. “Good utility practice” is a defined phrase within the pro forma Open Access Transmission Tariff (I.1.15) and is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard(s). In addition, the use of this term is contrary to NERC Rules of Procedure Section 300.6 which state “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.”

If the definition from Open Access Transmission Tariff is added to the Standard, the vagueness of terms included in the definition (i.e. “significant portion” and “reasonable cost”) will make auditing difficult and allow for a broad range of interpretations.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however we have grave concerns with the use of the phrase “good utility practice” in the definition of “Generator Cold Weather Constraint”. While the term may have a common understanding, this does not automatically mean it is suitable for inclusion in a NERC Reliability Standard. It is our opinion that this newly introduced language is fraught with compliance concerns.

Firstly, it is our opinion that there are several undefined terms and phrases within the term "good utility practice" that are not auditable without further definition and clarification. For instance, please see the following list and our concern with each:

- "engaged in or approved by a significant portion"
    - What portion of the electric utility industry is to be considered significant?
    - Which entity will be responsible for determining which practices, methods, and activities the industry is engaged in?
    - Which entity will be responsible for determining which practices, methods, and activities are approved by the industry and how will this approval be obtained?
- "relevant time period"
    - What time period is considered relevant to Generator Cold Weather Constraints?
- "reasonable judgment" and "reasonable cost"
    - Use of the phrase "reasonable" may have precedent in a court of law; however, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME's may not be, nor are expected to be, lawyers. Thus, additional clarity is needed to determine what should be or should not be considered reasonable.
- "consistent with good business practices, reliability, safety and expedition"
    - Which entity will be responsible for determining which business practices are "good"?
    - Is not the intent of the NERC Reliability Standards to increase reliability across the industry? If so, it seems more than a bit strange to include a stipulation that an entity may have a constraint that would preclude their compliance with a Reliability Standard Requirement because doing so would not be consistent with reliability.
- "generally accepted in the region"
    - Which entity will be responsible for objectively determining the various "regions" and in which "region" a given generating station is located?
        - For example, should region be defined as the Reliability Coordinator Area or the Balancing Authority Area? If so, this would ignore the potentially large variability in both climate and Extreme Cold Weather conditions throughout both areas.
        - Perhaps it would be more appropriate to define region as a given geographical area? However, this approach presents new and completely different challenges.
            - Weather can often be quite distinct even when considering two locations in close proximity to one another. For example, the various "snowbelts" in the United States and Canada that receive copious amounts of "lake effect" snow each year.

Lastly, in general, we disagree with the use of any defined term within a Reliability Standard that is not defined by NERC and is not included in the NERC Glossary of Terms. In this specific instance, what will the compliance implications be if FERC chooses to modify the definition of "good utility practice" in a future revision of the pro forma OATT?

ACES recommends that the SDT instead work to refine the previous definition of "Generator Cold Weather Constraint" by taking into further consideration prior industry comments on the previously proposed definition. We recommend utilizing language similar to the following:

Generator Cold Weather Constraint(s) – A limitation that would prohibit a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components. A constraint must fall under one of the following areas:

- Technical Constraint – A technical constraint exists when there is no known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technologies, or existing technologies in new applications, that would facilitate operations outside of the existing equipment specifications.
- Commercial Constraint - A commercial constraint exists when implementation of suitable freeze protection measures is uneconomical to the extent that it would impact the availability or operational tempo of the generating unit(s).
- Operational Constraint – An operational constraint exists when implementation of suitable freeze protection measure(s) would cause the generating unit to limit its operations in order to protect either the reliability of the BES, the generating unit itself, the surrounding environment, or personnel.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	No
Document Name	

Comment

NV Energy does not agree that the use of "good utility practice" provides sufficient clarity or is auditable and contends that the phrase is unsuitable for use in a reliability standard as currently proposed. The phrase "good utility practice" is not based on common understanding or general industry use, it is an explicitly defined phrase within the pro forma Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on impact to this reliability standard. Additionally, inclusion of this term runs contrary to NERC Rules of Procedure Section 300.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance." Regarding auditability, the vagueness of terms included in the definition of "good utility practice" such as "significant portion" and "reasonable cost" allow for a broad range of interpretations of what may or may not constitute "good utility practice". NV Energy appreciates the Standard Drafting Team's efforts on this subject; however, NV Energy recommends that the Standard Drafting Team revert to the language in EOP-012-1 which was in line with NERC rules of procedure and approved by the Registered Ballot Body and NERC Board of Trustees.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AES Clean Energy does not support the use of the phrase "good utility practice" and is concerned that the term is not auditable and will lead to interpretation issues by CEA. After consulting with internal legal team on how the term is used by FERC, AES Clean Energy has learned that the term has a common usage applicable to transmission and is not commonly used in the context of generation in FERC pro-forma OATT.	

Additionally, the Technical Rationale refers to the FERC OATT definition for the phrase “good utility practice”. As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on the impact to any NERC Reliability Standard. The inclusion of this term runs contrary to the NERC Rules of Procedure Section 300.6 which states “*Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.*” AES Clean Energy recommends that the Standard Drafting Team identify some other method of complying with the Commission directive surrounding Generator Cold Weather Constraints, which aligns with NERC Rules of Procedure and does not use a term that could change overtime by an entity outside of the control of the NERC standards making process. On any new definition that the Standard Drafting Team will be developing, AES Clean Energy also recommends that the drafting team develop a guidance document to ensure that there is consistent interpretation across the ERO on meaning of the definition.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The ISO/RTO Council (IRC) Standards Review Committee (SRC) (consisting, for purposes of these comments, of CAISO, ERCOT, PJM, MISO, NYISO, and SPP) does not believe that the use of the phrase “good utility practice” in the definition combined with the examples given in the Technical Rationale provides sufficient clarity. While the SRC agrees that most of the examples provided in the Technical Rationale are reasonable, the SRC believes that “accelerated retirement of an existing generating unit” is insufficiently auditable and should be revised to “documented notice of planned retirement of an existing generating unit.” In addition, the last example, “technology not utilized by a	

significant portion of the electric utility industry," is ambiguous and runs counter to the purposes of EOP-012 and should therefore be removed. It is ambiguous because it does not define what would constitute "a significant portion" of the industry. It runs counter to the purpose of EOP-012 because EOP-012 is designed to ensure proper weatherization of generating units, including the use of new weatherization technologies and approaches that may be fully effective despite being too new to have been adopted by a significant portion of the industry. Alternatively, if the intent is to provide a means to declare a constraint for unproven technologies, then the SRC suggests the last bullet be revised to read as follows:

- Unavailability of technology that provides effective freeze protection.

Furthermore, the SRC is concerned that "good utility practice" as defined in the technical rationale, although used in other contexts, is poorly suited for use in determining what constitutes a valid Generator Cold Weather Constraint. Specifically, the definition that the technical rationale uses is limited to what can be accomplished "at a reasonable cost" without any guidance as to what constitutes a reasonable cost. This omission means that a unit owner could effectively self-certify that installation of weatherization measures would be unreasonably costly, which would provide little in the way of consistency among unit owners and could allow resource owners to prioritize competitive concerns over reliability. The fact that the Winter Storm Elliott report notes that over 75% of generators that failed to start or experienced derates or outages due to freezing issues during the storm did so at temperatures above their documented design temperatures provides further cause for concern that competitive concerns may be prioritized over reliability in determining whether the cost of weatherization is reasonable.{C}[1] Therefore, the SRC recommends that the concept of "good utility practice" be removed from the definition of a Generator Cold Weather Constraint and from the technical rationale while retaining the list of example constraints in the technical rationale. The SRC proposes that the definition be revised to read as follows:

Any condition that would preclude a Generator Owner from implementing freeze protection measures ***based on the Extreme Cold Weather Temperature (ECWT)*** *on one or more Generator Cold Weather Critical Components* ***due to circumstances beyond the control of the Generator Owner or based on verifiable circumstances limiting the ability to implement freeze protection measures for the generating unit(s). Before declaring a constraint, the GO shall use best efforts to, at a minimum, winterize the generating unit(s) to its documented cold weather operating temperature. Any such declared constraints shall be reported to NERC and/or the Regional Entity for purposes of compiling a best practices document, such as a new Reliability Guideline or Compliance Guidance.***

{C}[1] https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022, p. 19.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro

Answer	No
Document Name	

Comment

BC Hydro appreciates the drafting team’s efforts and opportunity to comment, and offers the following.

BC Hydro contends that the use of “good utility practice” does not provide sufficient clarity for a consistent implementation across the industry and may pose regulatory issues. Wording used in the good utility practice OATT definition such as “significant portion” or “reasonable cost” do not constitute a robust measure for regulatory compliance. Also, a change of the current “good utility practice” definition can happen outside of the Standards revisions procedures, and therefore may lead to unintended consequences in the compliance monitoring (including audits) and enforcement processes.

BC Hydro recommends that “using good utility practice” wording in the proposed definition be replaced with “as determined and documented by the applicable entity” as follows:

Generator Cold Weather Constraint – any condition, as determined and documented by the applicable entity, that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components.

Likes 0	
Dislikes 0	

Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
"Good utility practice" is better than the three examples. We suggest that the additional context provided in the Technical Rationale should be provided in the definition as a footnote.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy supports EEI's comments which state:	

EEI supports the use of "good utility practice" but recommends the phrase "good utility practice" be defined in the Reliability Standard using the approved FERC pro forma Open Access Transmission Tariff (I.1.15) definition of "good utility practice". Including the definition in the Reliability Standard aligns with the NERC Rules of Procedure Section 300.6 which states "Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance."	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports the comments submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	

Comment	
PNM & TNMP support EEI’s comments related to location of the good utility practice definition being integrated into the EOP-012-2 Standard.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	Yes
Document Name	
Comment	

WECC supports the proposed Reliability Standard but makes the following comments related to auditability for the SDT's consideration.

Phrases that have a common understanding in the industry often get misunderstood when evaluating compliance. The particular phrase “good utility practice” allows for the use of “reasonable judgment” to be utilized. From an auditing perspective, the auditor’s professional judgement and professional skepticism would focus on how a utility considered the constraint under the guise of good utility practice. Questions may focus on how an entity developed information to consider the labeling of a constraint. Effectively, an egregious issue will have to be present to call the issue a potential noncompliance. WECC agrees with the SDT making the following statement: “Ultimately, it will be the GO’s responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented.” If the “good utility practice” language remains, WECC would encourage GOs to sufficiently document the facts associated with calling out a Generator Cold Weather Constraint.

It is not clear if a Generator Cold Weather Constraint is required to be called for the issues noted in R1, R2, R3, and/or R6. Certainly, a CAP is required in the referenced Requirements but R7 only requires a Generator Cold Weather Constraint to be **declared** IF “actions” within a CAP can not be implemented. So, a CAP could be written that may take 24 to 48 months without ever having a declaration and BAs, RCs, GOPs, and TOPs may never know as there is no requirement to inform the entities. Requirement 1 only requires a “once every five calendar year” review. Be clear on the expectations by writing those into the Requirements. Effective reliability (and compliance monitoring) will be more difficult without more explicitness in the language.

The definition of Generator Cold Weather Constraint appears to be significantly broad. While flexibility is a good attribute should the definition be more limiting in terms of “technical” limitations. That may limit reasons that stretch justifications.

As written, the definition of Generator Cold Weather Constraint excludes Generator Operators who may very well be implement all or parts of the cold weather preparedness plans (and may be involved in training for the cold weather preparedness plan which should explain the constraint conditions.) The SDT should consider adding Generator Operator to the definition as follows: “Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner or Generator Operator, using good utility practice, from implementing freeze protection measures on one or more Generator Cold Weather Critical Components.” If a Generator Operator is implementing freeze protection measures and cannot do so for some reason, as is, no Generator Cold Weather Constraint may be called. To avoid a major re-writes the GOP should be required to inform the GO if implementation becomes an issue.

Likes 0	
Dislikes 0	

Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	
PG&E agrees the revised definition provides sufficient clarity.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
The utilization of the term “good utility practice” is adequate and provides the proper criteria to allow for the regional and generation technology differences. The term encompasses a reasonableness approach and does not mandate a one-size fits all approach. Southern does agree with EEI in that **defining** the term in the standard is preferred to align with the NERC Rules of Procedure Section 302.6.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	

While there is still a significant amount of interpretation allowed here, it provides sufficient guidance to the Generator Owners to allow for clear expectations. There is some concern related to the level of expertise needed by an auditor to be able to reasonably enforce this language, as well as a potential for significant differences between the enforcement from one region to another. However, these issues should be addressed by NERC and the regions through their processes, without trying to create more stringent guidelines through the enforcement process.

With this said, the NAGF does not believe that the standard is currently auditable as structured. The use of “good utility practice” does not provide sufficient clarity nor is it auditable and contends the phrase is unsuitable for use in a reliability standard as currently proposed. The phrase “good utility practice” is not based on common understanding or general industry use, it is an explicitly defined phrase within the *pro forma* Open Access Transmission Tariff (I.1.15). As such, the definition is subject to change by FERC without adherence to the Standard Drafting Process or consideration on impact to this reliability standard. Additionally, inclusion of this term without defining it runs contrary to NERC Rules of Procedure Section 302.6 which states “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.”

There is also some concern that even if NERC defines the term “good utility practice”, it will still require generators to invest in freeze protection measures to increase reliability without the ability to recoup the costs of the investment. The drafting team must provide some support beyond the use of the term “good utility practice” that NERC is not expecting generators to invest in freeze protection measures that are more costly than any expected payback.

To address this issue, the SDT needs to define the term in the NERC Glossary to ensure that the definition is static for the purposes of compliance, clearly addresses the concerns related to costly investments without payback and ensures that changes to the definition goes through the standard drafting process.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the use of “good utility practice” but recommends the phrase “good utility practice” be defined in the Reliability Standard using the approved FERC pro forma Open Access Transmission Tariff (I.1.15) definition of “good utility practice”. Including the definition in the Reliability Standard aligns with the NERC Rules of Procedure Section 302.6 which states “Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.”	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
David Jendras Sr - Ameren - Ameren Services - 3	

Answer	Yes
Document Name	
Comment	
Ameren supports NAGF's comments on this project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to NAGF.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Consider adding a "Good Utility Practice" defintion to the NERC Glossary of Terms.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	

Comment

Consider defining “good utility practice” within the NERC Glossary of Terms or within EOP-012-2.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

Natalie Johnson - Enel Green Power - 5

Answer	Yes
Document Name	

Comment

Enel agrees with the SDT’s revisions to the definition of Generator Cold Weather Constraint to remove the previously defined constraint types and incorporation of “good utility practice”. However, Enel recommends the SDT incorporate “Good Utility Practice” within the NERC Glossary of Terms Used in Reliability Standards for several reasons.

First, pursuant to the NERC Rules of Procedures Section 306.2 “Completeness – Reliability Standards shall be complete and self-contained. The Reliability Standards shall not depend on external information to determine the required level of performance.” The pro forma OATT is an external document and cannot be used to establish a definition. As this definition is not found within the NERC Glossary of Terms, it is not subject to the NERC Standard Processes Manual, Section 5.0: Process for Developing a Defined Term.

Additionally, the reference to the definition of “good utility practice” is only found in the Technical As stated within the introduction of the Technical Rationale “(t)his Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.”

Lastly, the referenced definition of “good utility practice” is not enforceable to Canadian entities where NERC Reliability Standards and the Glossary of Terms Used in Reliability Standards are adopted.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ben Hammer - Western Area Power Administration - 1,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE appreciates the drafting's ongoing efforts with this project. In general, Texas RE agrees with the proposed definition of Generator Cold Weather Constraint. Texas RE recommends, however, requiring the GOs to document the circumstances and reasons why the modification needed to address Extreme Cold Weather Temperature (ECWT) issues are not implemented in the declaration. This could be done in requirement part 7.4: 7.4 Document in a declaration the circumstances and reasons why the modification(s) needed to address the required operational capability was not implemented, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing actions contained within the Corrective Action Plan. Additionally, Texas RE suggests that the documented plan needs to be submitted to the BA or RC. Texas RE recommends the following additional requirement part: 7.5 Provide the documented Corrective Action Plan and declaration (7.1 - 7.4) to the Balancing Authority or Reliability Coordinator annually. If there are no changes to the previously submitted documentation, GOs shall notify the Balancing Authority or Reliability Coordinator stating no changes made since the previous submission.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. Generator Cold Weather Constraint definition in the Standard has been updated to include key concepts of Good Utility Practice while providing additional cold weather specific clarifying language to support auditability concerns. This approach fully addresses the concern raised whether standard is self-contained.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

2. Based upon industry comments received, the SDT has re-structured R2 to require generating units to either implement appropriate freeze protection measures or develop a CAP. Do you agree that the revised language provides sufficient clarity? If not, please provide suggested clarifying language.

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC believes that it is unnecessary and counter to the purpose of EOP-012 to include a CAP option in Requirement R2. Requirement R2 applies to generating units with a commercial operation date on or after October 1, 2027, which is almost four years from the present date. Most units that will have a commercial operation date on or after October 1, 2027, have not yet been designed and constructed, and therefore should be designed and constructed to be able to operate at the Extreme Cold Weather Temperature from the date they achieve commercial operations. Furthermore, generating units that are already in the design or construction phase have had ample notice of the requirements being proposed in EOP-012, which further reduces the need for a CAP option in Requirement R2. Any need to accommodate units that are presently under construction and will not begin commercial operations before October 1, 2027 should be addressed in the implementation plan for EOP-012, not through the creation of an unnecessary CAP option in the standard itself.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. While the SDT understands that units that have not been made commercial yet should have addressed known issues, it is probable that something may occur that will require the unit to have a CAP developed. Therefore, it is believed that in the unlikely event of this occurrence, there needs to be a method to resolve this unlikely situation. Thus, the SDT believes that new units should have the ability to develop a CAP to resolve the situation. This requirement was also changed based on many comments received from previous postings to address concerns submitted at that time.

Micah Runner - Black Hills Corporation - 1

Answer	No
Document Name	

Comment

Black Hills Corporation does not agree with the requirement of ensuring that components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as this is not achievable based on equipment location. Black Hills Corporation recommends striking the “12 continuous hours” from the second bullet of R2.	
Likes 0	
Dislikes 0	
Response	
The SDT has proposed that language in response to previous comments to ensure continuous operations of resources during extreme weather. Therefore, the SDT will retain the language “12 continuous hours” as it is industry and FERC approved from Phase 1.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the requirement of ensuring that components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as this is not achievable based on equipment location. Black Hills Corporation recommends striking the “12 continuous hours” from the second bullet of R2.	
Likes 0	
Dislikes 0	
Response	
The SDT has proposed that language in response to previous comments to ensure continuous operations of resources during extreme weather. Therefore, the SDT will retain the language “12 continuous hours” as it is industry and FERC approved from Phase 1.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	

Comment	
Black Hills Corporation does not agree with the requirement of ensuring that components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as this is not achievable based on equipment location. Black Hills Corporation recommends striking the “12 continuous hours” from the second bullet of R2.	
Likes 0	
Dislikes 0	
Response	
The SDT has proposed that language in response to previous comments to ensure continuous operations of resources during extreme weather. Therefore, the SDT will retain the language “12 continuous hours” as it is industry and FERC approved from Phase 1.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	
R2 is applicable to generating units with a commercial operation date on or after October 1, 2027. The unit must be placed in service first, before it is considered an applicable facility, to trigger ECWT calculation under R1. The implementation of freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)’ Extreme Cold Weather Temperature, comes afterwards and has no implementation timeframe spelled out in the requirement. Theoretically it can take up to five years to have the Extreme Cold Weather Temperature calculated for the specific unit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The ECWT is based on the location of the proposed unit and can be calculated prior to operation at which time the ECWT will become effective.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No

Document Name	
Comment	
ISO-NE supports the SRC Comments:	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to SRC.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
Wind speed and time stipulations should not be included. There should not be arbitrary guidance forcing actions in this section. Stations perform their due diligence via walkdowns. Recommend similar ‘good utility practice’ verbiage in this section.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SAR directed the SDT to include wind speed. The 12 continues hours time stipulation mentioned is previously industry and FERC approved language. Due to the response to the inclusion of the phrase “good utility practice” in other parts of the Standard, the SDT will not be including the language in this Requirement.	
Helen Lainis - Independent Electricity System Operator - 2	
Answer	No

Document Name	
Comment	
Please confirm that when a new unit goes into commercial operation, it must adhere to all NERC reliability standards, including EOP-012.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. All NERC registered entities are required to adhere to any currently effective and enforceable Reliability Standards for which their registration is applicable and for which they own applicable facilities. EOP-012-2 also distinguishes by date of commercial operation.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Please see response to OPG and Manitoba Hydro.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments.	

Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Thank you for your comments. Please see response to OPG and Manitoba Hydro.	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
N/A to NCPA.	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments. R2 is applicable to generating units with a commercial operation date on or after October 1, 2027. The unit must be placed in service first, before it is considered an applicable facility, to trigger ECWT calculation under R1. The implementation of freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature, comes afterwards and has no implementation timeframe spelled out in the requirement. Theoretically it can take up to five years to have the Extreme Cold Weather Temperature calculated for the specific unit.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The ECWT is based on the location of the proposed unit and can be calculated prior to operation at which time the ability to operate at the ECWT will be required.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
Specifically for hydraulic generating units, the majority (if not all) generator cold weather critical components will be excluded because they are located inside the powerhouse. Will some type of documentation be required to prove there are no generating cold weather critical components located outside? What happens if a GSU is replaced after October 1, 2027 and it is located outside? Would just the GSU be considered the cold weather critical component of this generating unit? The temperatures specified in R2 (below 32F) is normal operating conditions for our outside equipment. There seems to be a focus on wind speed which makes these requirements hard to apply to hydraulic generators and GSUs. It appears there will be a lot of administration to ensure compliance especially if it is only due to the GSU. Dated evidence could be the control cabinet has been spec'd with a heater? Completed work orders the heater was functionally tested? Cold weather is annual in Manitoba, and this appears to be extra paperwork without improving reliability. In 2022, the total days with a minimum temperature below 32 degrees Fahrenheit (zero degrees Celsius) are 183 days for our south generating units and 216 days for our north generating units. Our generating units operate below 32 degrees Fahrenheit (zero degrees Celsius) for more than half a year. Cold weather operation is our normal operation.	
Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	
Response	
The SDT cannot answer specific questions about given situations. Entities must show compliance to the standard as written. Additionally, The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to	

demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	No
Document Name	
Comment	
Reclamation does not agree with the addition of “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” as the addition of multiple variables may or may not affect equipment based on the location of the equipment. There is no guidance or direction on how to utilize this information, i.e. calculations, measurements, etc. Wind speed measurement equipment at hydropower facilities do not exist and it is impossible to predict variants from one hour to the next. This is an undue burden to install new equipment with constant monitoring while no technical rationale that this requirement will increase reliability of equipment operation in cold weather.	
Likes 0	
Dislikes 0	
Response	
The SDT has proposed that language in response to previous comments to ensure continuous operations of resources during extreme weather. Therefore, the SDT will retain the language “12 continuous hours” as it is industry and FERC approved from Phase 1.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
The ECWT plus 20 mph wind is not a suitable design criterion for new plants, because it generally does not cover the generation capacity crises that NERC is trying to address. We have for example some Texas plants with an ECWT of 27 F, which when combined with the 20 mph wind speed of EOP-012-2 R2 yields a wind chill temperature (WCT) of 13.4 F. These facilities experienced during Winter Storm Uri a dry bulb temperature of 17 F with 0 F	

WCT. Requirement R2 of EOP-012-2 will establish a common mode failure scenario for Uri-like storms as a continent-wide design criterion, rather than being presently a sometimes-encountered flaw . As to how this situation came about, the EOP-012-1 Technical Rationale document statement that “design professionals…use a statistical approach,” to set wintertime design temperatures does not give a full picture. Heat tracing, insulation and other generation plant freeze prevention measures are not HVAC systems, because exceeding the design conditions forces plants offline rather than just creating a deviation from the comfort zone. Designing for worst-historical weather accordingly was GUP back when powerplants were electric utility companies. The far weaker heat tracing/insulation systems resultant from applying HVAC-like statistical temperature cutoffs became widespread only when the generation industry was deregulated. This was ostensibly a cost-benefit optimization measure (market GUP vs public policy GUP once again), but has had disastrous results for grid operators and GO/GOPs alike. A statistical approach can however lead to reliable designs if applied with due rigor, e.g. using the 50-year recurrence temperature of the dominant authority on the subject, ASHRAE (http://ashrae-meteo.info/v2.0/places.php?continent=North%20America). Their design temperature values look nothing like NERC’s ECWT, however. We have for example a plant with an ECWT of -1 F and ASHRAE recurrence values of -9.7 F for 10 years, -13.4 F for 20 years and -18.3 F for 50 years. The plant was fortunately designed (prior to deregulation) for -25 F/30 mph, but a new plant next door wouldn’t get through a repetition of the 2014 Polar Vortex if designed for -1 F/20 mph. R2 of the current EOP-012-2 draft should be overhauled from start to finish, working with design professionals from an independent authority such as ASHRAE.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comment, however due to FERC Orders, the industry must provide a standard to address extreme cold weather, and therefore, the draft cannot be restarted at this time.	
Ben Hammer - Western Area Power Administration - 1,6	
Answer	No
Document Name	
Comment	
The requirement of ensuring that the components operate “with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours” is not achievable. There is no technical rationale provided that the windspeed and duration requirement will affect equipment operation. Also, there is no guidance or direction on how to utilize this information, i.e. calculations, measurements, etc. Wind speed measurement equipment at hydropower facilities	

do not exist and it is impossible to predict variants from one hour to the next. This is an undue burden to install new equipment with constant monitoring while no technical rationale that this requirement will increase reliability of equipment operation in cold weather.	
Likes 0	
Dislikes 0	
Response	
The SDT has proposed that language in response to previous comments to ensure continuous operations of resources during extreme weather. Therefore, the SDT will retain the language “12 continuous hours” as it is industry and FERC approved from Phase 1.	
Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	
AEP recommends striking the “12 continuous hours” from the second bullet of R2, as it is unnecessary and incongruent with the obligations for both operating existing generation and new generation. R2 and R3 are not drafted in a way which align with each other, nor with the definition of Cold Weather Event. A CAP is required for a Cold Weather Event, so what exactly does the text regarding a 12 continuous hour obligation contribute?	
Likes 0	
Dislikes 0	
Response	
The SDT has proposed that language in response to previous comments to ensure continuous operations of resources during extreme weather. Therefore, the SDT will retain the language “12 continuous hours” as it is industry and FERC approved from Phase 1.	
Natalie Johnson - Enel Green Power - 5	
Answer	Yes
Document Name	
Comment	
No comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	Yes
Document Name	
Comment	
Ameren supports NAGF's comments on this project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see response to NAGF.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI agrees the revised language is clear.	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
The NAGF agrees that the revised language clearly expresses what is required of a new unit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
This change is sufficiently clear on the requirement.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes

Document Name	
Comment	
AZPS agrees with the change to R2 language.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	
PG&E agrees the revised language provides sufficient clarity.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments.	

Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon is supporting EEI response to this question.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
The option to declare a constraint should be a subrequirement of R2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The second bullet in R2 required a CAP if a unit cannot operate at the ECWT. The CAP process in R7 is where a constraint may be declared if it meets the criteria in the definition of Generator Cold Weather Constraint.	

Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Avista agrees the revised language is clear.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments, please see response to EEI.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	

We agree the revised language is clear.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM & TNMP agrees that the proposed language changes are clear.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy has no objection to this revised language.	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
Yes, MRO NSRF agrees the proposed “either/or” language provides sufficient clarity. *Paragraph 88 directed NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner’s fleet. Such an approach will reduce reliability risks more quickly.*	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista agrees the revised language is clear.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	

Texas RE is concerned the phrase “and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius)” in Requirements R2, R3 and R6 is ambiguous. Texas RE believes the SDT’s intent is to exempt certain generators that may only be called upon in emergency operating conditions from the full scope of the EOP-012 cold weather preparedness planning and operating requirements. However, Texas RE believes these situations are best handled through the submission of a documented exemption from requirements. This process will ensure clarity on which resources are required to operate and therefore adopt appropriate winterization measures. Texas RE suggests the following language for R2, R3 and R6 consistent with this approach (changes in bold):

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, **and unless received a documented exemption from its Balancing Authority or Reliability Coordinator, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),** shall:

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2024: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, **and unless received a documented exemption from its Balancing Authority or Reliability Coordinator, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius**), shall:

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 **and unless received a documented exemption from its Balancing Authority or Reliability Coordinator, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius**), develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum:

Likes 0	

Dislikes 0	
Response	
The SDT does not believe that the added documentation for the exemption is necessary and provides an unnecessary accounting for auditing purposes for an entity. Therefore, the language was not added.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	
The addition of Corrective Action Plans allows an entity to not plan now in terms of cold weather preparedness and simply provide a 24/48 month CAP. CAPs are needed if there is an incomplete success of a cold weather preparedness plan's freeze protection measures but the language provided allows an entity to not implement freeze protection measures. It is noted that there is not a validation or approval of the CAP performed by any other entity. WECC questions whether that should be a consideration to support the good utility practice approach provided by the SDT? It is unfortunate that there is an exemption for generating units that may be called upon to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies when experiencing freezing (or below freezing) weather. From a reliability standpoint a unit is being called upon that may not be ready and will possibly exacerbate the issue because of the exemption.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response. The SDT does not believe that having additional validation or approval is necessary for the CAP and no changes were made to the language in the Standard.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	
Document Name	
Comment	
N/A to NCPA.	

Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Michael Whitney - Northern California Power Agency - 3,4,5,6	
Answer	
Document Name	
Comment	
N/A to NCPA	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

3. In order to meet the FERC directive and reduce reliability risks more quickly, the SDT added new Requirement R7 Part 7.1.3 *"For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units."* Do you agree with this proposed language? If you do not agree, please provide your recommended language.

Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	

AEP is concerned by the proposed R7.1.4 which states "For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units." We believe the phrase "shall stagger" is overly prescriptive and should not be used within the requirement. As an alternative, we suggest instead stating "Shall implement each CAP developed in Requirement R6, and update each CAP if actions or timetables change, until completed." This aligns with how the CAP is managed in obligations within PRC-004 R6. To further support this, AEP recommends that language be added to the Technical Rationale document to make it clear that CAPs may be written per unit, per plant, or for a fleet as a whole, as appropriate for the reliability need at hand.

Likes 0	
Dislikes 0	
Response	

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Julie Hall - Entergy - 6, Group Name Entergy	
Answer	No

Document Name	
Comment	
This language leaves some ambiguity concerning the impact of staggering a CAP across multiple units versus the 48-calendar month completion requirement. For example, if a CAP was applicable across 3 units, and required 48 months for implementation, the subsequent CAP plan completions dates for the 2nd and 3rd until might exceed the 48-calendar month window from completion of the development of the CAP.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	
Avista does not support the proposed language contained in Requirement R7, part 7.1.4. While we appreciate the Standard Drafting Team's efforts to closely align language with the FERC Order, we are concerned that the proposed change, could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We suggest the following language (see proposed changes in boldface): 7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan **MAY shall** stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Ben Hammer - Western Area Power Administration - 1,6	
Answer	No
Document Name	
Comment	
7.1.3 does not identify the “stagger implementation method”, this is identified in 7.1.4. WAPA doesn't agree with the implementation of this requirement as any addition to freeze protection measures will be based on manpower, cost, outages and scheduling. This will automatically ensure any implementation is staggered.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
Staggering is not always beneficial, so it should be an option and not a requirement. Upgrading insulation for the several units of a combined cycle plant, for example, would best be done in a single outage, not at separate times. Also, crews seamlessly move from one unit to the next	

for unobtrusive retrofits, such as installing wind breaks, and GO/GOPs should not have add pauses to prove that they sufficiently staggered the work for NERC compliance purposes.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	No
Document Name	
Comment	
7.1.3 does not identify the "stagger implementation method", this is identified in 7.1.4. Do not agree with the implementation of this requirement as any addition to freeze protection measures will be based on manpower, cost, outages and scheduling. This will automatically ensure any implementation is staggered.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	
Comment	

R7.1.4 should be changed from using the word “shall”, to using the word “should” or the phrase “should or may use”. For implementing a corrective action across a fleet of generators, a staggered implementation is more likely to occur than simultaneous implementation. Modifications of almost any scale are likely to complete at different time even when implemented together.

The “current” wording of R7.1.4 will do the following:

1. Delay the implementation of actions to meet the staggered requirement of R7.1.4.

2. Create regulatory burden for the GOs, for an action that does not benefit equipment reliability. (IE ensuring Staggered approach)

3. Prevent the simultaneous implementation of programmatic or procedural changes across multiple units if required by a corrective action.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	No
Document Name	

Comment

No, MRO NSRF does not agree with the proposed language. While MRO NSRF can appreciate the Standard Drafting Team’s intent by directly copying language from the FERC Order, MRO NSRF does not believe that having language in a mandatory and enforceable reliability standard which, if taken in its plain meaning, would require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly wholly resolve the issue. MRO NSRF suggests the following language:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, ***if doing so would not unduly delay the completion of the Corrective Action Plan***. In the case that this standard passes ballot, MRO NSRF would hold that this language would constitute a non-substantive change as it is in line with the intent of the language in FERC order and subsequently the proposed language within this standard. *In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.*	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments.

Requirement above does not necessarily meet the intent of the FERC directive to reduce reliability risks more quickly for the following reasons:

- Requirement R7 Part 7.1.3. of the latest proposed draft EOP-012-2 is as follow: "List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and" and this is different than what is quoted above.
- If the comment is in reference to Requirement R7 Part 7.1.4. "For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.", then the unintended consequence is that the entity shall include a timetable for implementing the selected corrective action(s) that **shall**, according to the requirement R7 Part 7.1.4, have **stagger** implementation across those generating units, even though staggering may not be required, hence introducing a delay in the reduction of the reliability risks.

Suggested wording to achieve the shorter implementation period as per FERC order intent:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan [delete word "shall"] **may** stagger implementation across those generating units.

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	No
Document Name	

Comment	
PNM & TNMP recommends guidance on the timelines for staggering the CAPs. Specifically, are CAP timelines restricted to 24 calendar months (7.1.1) and 48 calendar months (7.1.2)?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
Although this allows flexibility for the company to create a staggered implementation based upon budget and outage timeframes, it adds more complexity for a company to manage and poses much more difficulty from an auditable perspective. It seems much simpler to propose an implementation by percentage based upon timeframe.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No

Document Name	
Comment	
We do not support the proposed language contained in Requirement R7, part 7.1.4. While we appreciate the Standard Drafting Team's efforts to closely align language with the FERC Order, we are concerned that the proposed change could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We suggest the following language (see proposed changes in boldface): 7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan **may** stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
Although this allows flexibility for the company to create a staggered implementation based upon budget and outage timeframes, it adds more complexity for a company to manage and poses much more difficulty from an auditable perspective. It seems much simpler to propose an implementation by percentage based upon timeframe.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

Avista does not support the proposed language contained in Requirement R7, part 7.1.4. While we appreciate the Standard Drafting Team's efforts to closely align language with the FERC Order, we are concerned that the proposed change, could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We suggest the following language (see proposed changes in boldface):

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan **may shall** stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment	
NO. We agree with some comments provided by Avista and AEP but are not going to restate each item specifically, as others have already restated them.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Michael Whitney - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
We agree with some comments provided by Avista and AEP but are not going to restate each item specifically, as others have already restated them.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	No

Document Name	
Comment	
We understand the intent of FERC to discourage procrastination of completing CAPs, however power plants have limited windows to plan for these actions. It may not be possible or feasible to ‘stagger’ CAP activities, especially if a scheduled outage is focused on critical maintenance and testing to meet other NERC requirements. Additionally, if there are multiple units that have similar CAPs, it may not be possible or practical to stagger them, as doing so would require multiple visits from the same vendor which increases costs and interferes with other planned maintenance; this introduces a risk to operational reliability. We would recommend removal of “shall” and instead consider using “where practical and feasible, stagger…”. Using the word “shall” becomes another prescriptive area to audit unnecessarily as it adds no value. Determining whether or not the Entity ‘staggered’ adds an administrative burden to both the Entity and the auditor.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	No
Document Name	
Comment	
For multiple units that reside together, or within close proximity to one another, being required to stagger implementation of a CAP across those units may not be the most technically feasible or economic way to implement a CAP. For that reason, TAL suggests that the entity should be allowed to use good utility practices to decide whether a CAP implementation should be staggered, or not. Therefore, TAL proposes that Requirement R7 Part 7.1.4 be revised as follows:	

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan ***may*** stagger implementation across those generating units.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
We agree with some comments provided by Avista and AEP but are not going to restate each item specifically, as others have already restated them.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Richard Vendetti - NextEra Energy - 5	
Answer	No
Document Name	
Comment	

The question is confusing as the wording appears to be part 7.1.4. and not 7.1.3 as stated; The added language does not appear to align with the intent in regard to reduced reliability risks. In addition, the added language appears to be stringent on implementation of the CAP. Recommend removal of part 7.1.4 of R7. The added language in 7.1.4 appears to be stringent upon implementation. Does not give the ability to do all at once with "shall stagger" approach.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG's comments.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Thank you for your comment. Please see response to OPG's comment.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No

Document Name	
Comment	
We support OPG's comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see response to OPG's comment.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	
Comment	
Tri-State agrees with the MRO NSRF proposed language: *"7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units,* ***if doing sowould not unduly delay the completion of the Corrective Action Plan****."*	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike	

Answer	No
Document Name	
Comment	
Tacoma Power supports the MRO NSRF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	No
Document Name	
Comment	
Minnesota Power supports MRO's NERC Standards Review Forum's (NSRF) comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	No
Document Name	
Comment	

This language is confusing and unnecessary. Entities should be free to determine the appropriate methodology for implmenting a CAP based on their own unique facts and circumstances rather than mandating anapproach which could cause additional cost and delay.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	
AEPC signed on to ACES comments: We at ACES appreciate the intent of the SDT when crafting this new Requirement Part; however, we do not agree that the GO should be required to stagger implementation of freeze protection measures. It is conceivable that the CAP(s) could be more economically or expeditiously completed without staggering the implementation across generating units. We recommend the following change: 7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan may allow for staggering the implementation across those generating units.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
The noted language appears to be in Part 7.1.4 rather than Part 7.1.3. We recommend the word “shall” be replaced with “may” in Part 7.1.4. Otherwise, it seems that staggered implementation is being mandated. Why force a GO to stagger their corrective actions if they can be performed concurrently without degrading System reliability? The High VSL does not account for contingency actions. The timetable is too restrictive due to the nature of nuclear projects. Recommend removing time requirements and only tracking in the GO’s Corrective Action Plan. Nuclear corrective actions are documented and maintained in accordance with 10CFR50 Appendix B.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	

ISO-NE supports the SRC Comments:	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see response to SRC.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	

Requirement above does not necessarily meet the intent of the FERC directive to reduce reliability risks more quickly for the following reasons:

{C}Ø Requirement R7 Part 7.1.3. of the latest proposed draft EOP-012-2 is as follow: “List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and” and this is different than what is quoted above.

{C}Ø If the comment is in reference to Requirement R7 Part 7.1.4. “For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.”, then the unintended consequence is that the entity shall include a timetable for implementing the selected corrective action(s) that **shall**, according to the requirement R7 Part 7.1.4, have **stagger** implementation across those generating units, even though staggering may not be required, hence introducing a delay in the reduction of the reliability risks.

Suggested wording to achieve the shorter implementation period as per FERC order intent:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall **may** stagger implementation across those generating units.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
EDP Renewables NA supports the comments submitted by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see response to NAGF.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree, though this staggered implementation approach may allow entities more flexibility based upon their budget and outage timeframes, it adds more complexity to manage and poses more difficulty to audit without necessarily reducing reliability	

risks. Entities should have the option to implement concurrently and/or staggered for what best meets the needs, budgets, and timelines of the organization for efficient completion. This should be an option and not a requirement.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree, though this staggered implementation approach may allow entities more flexibility based upon their budget and outage timeframes, it adds more complexity to manage and poses more difficulty to audit without necessarily reducing reliability risks. Entities should have the option to implement concurrently and/or staggered for what best meets the needs, budgets and timelines of the organization for efficient completion. This should be an option and not a requirement.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Micah Runner - Black Hills Corporation - 1	
Answer	No

Document Name	
Comment	
Black Hills Corporation does not agree, though this staggered implementation approach may allow entities more flexibility based upon their budget and outage timeframes, it adds more complexity to manage and poses more difficulty to audit without necessarily reducing reliability risks. Entities should have the option to implement concurrently and/or staggered for what best meets the needs, budgets and timelines of the organization for efficient completion. This should be an option and not a requirement.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The addition of this language provides neither increased reliability nor faster implementation of the standard. For the purposes of the Corrective Action Plans, it does not provide any measurable separation required for. In addition, over time, it is more likely to cause implementation of corrective actions to be delayed rather than applied sooner. This statement is based on the expectation that once we are beyond the first year CAPs, CAPs will be scheduled for the end of the initial 24 months. Therefore, any CAPs needed to be implemented for an event in the second year of enforcement will likely be pushed further out to meet the staggered implementation requirement. FERC's order for a staggered implementation plan has been addressed in a much more meaningful manner by incorporating a shorter implementation period from what was originally proposed in EOP-012-1. Instead of a five-year lumped implementation plan, the revised standard will be fully implemented within 24 months as proposed.	

Likes 0	
Dislikes 0	
Response	

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

We at ACES appreciate the intent of the SDT when crafting this new Requirement Part; however, we do not agree that the GO should be required to stagger implementation of freeze protection measures. It is conceivable that the CAP(s) could be more economically or expeditiously completed without staggering the implementation across generating units. We recommend the following change:

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan may allow for staggering the implementation across those generating units.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren supports NAGF's comments on this project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see response to NAGF.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy does not agree with the proposed language. While NV Energy can appreciate the Standard Drafting Team's intent by directly copying language from the FERC Order, NV Energy does not believe that having language in a mandatory and enforceable reliability standard which, if taken in its plain meaning, would require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly wholly resolve the issue. NV Energy suggests the following language: 7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, ***if doing so would not unduly delay the completion of the Corrective Action Plan***. In the case that this standard passes ballot, NV Energy would hold that this language would constitute a non-substantive change as it is in line with the intent of the language in FERC order and subsequently the proposed language within this standard.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AES Clean Energy agrees with NAGF's comments to this question. FERC's order for a staggered implementation plan has been addressed in a much more meaningful manner by incorporating a shorter implementation period from what was originally proposed in EOP-012-1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
Enel does not agree with the proposed Requirement R7. First, the proposed language would require a staggered implementation, regardless of effectiveness of implementation of the Corrective Action Plan.	

Enel would like to propose the SDT use the following language for Requirement R7: "…that addresses multiple generating units…." since the term "generating unit" has been defined within Section 4.2 Facilities. Enel is also concerned with the introduction of "multiple (generating) units in a fleet" as the term "fleet" is not commonly used within the NERC Reliability Standards. Inverter based resources aggregating to over 75 MVA could be considered a fleet, or multiple inverted based resources GO registrations under the same parent corporation could also be considered a fleet depending on the interpretation. Suggested language: For one of more Corrective Action Plan(s) that address multiple generating units, the Corrective Action Plan shall stagger implementation across those generating units using Good Utility Practice, where practical.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The SRC requests that Part 7.1.4 be revised to require GOs to document the justification for the staggering approach adopted.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports the comments submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Daniel Gacek - Exelon - 1	

Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon is supporting EEI response to this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	

Constellation agrees that the revised language does clarify the creation of a timeline with specified completion dates and a path to resolution, i.e., issuing a constraint, if the implementation dates cannot be met. However, for large fleets/large numbers of modifications it may be recognized at the CAP creation that the EOP-012 CAP completion dates are unrealistic, forcing entities to create constraint declarations at the same time the CAP is created.

Kimberly Turco on behalf of constellation segments 5 and 6

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation agrees that the revised language does clarify the creation of a timeline with specified completion dates and a path to resolution, i.e., issuing a constraint, if the implementation dates cannot be met. However, for large fleets/large numbers of modifications it may be recognized at the CAP creation that the EOP-012 CAP completion dates are unrealistic, forcing entities to create constraint declarations at the same time the CAP is created.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	
PG&E agrees the proposed language addressed the FERC directive to reduce reliability risks more quickly.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees with the proposed language and supports EEI’s recommended additional language submitted with their comments to clarify the staggering of implementation of the Corrective Action Plan.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern agrees with the proposed wording. Since the implementation period has been shortened from EOP-012-1, this is a reasonable approach. Many freeze protection measures will likely need to occur during outages and require planning (budget, materials and labor) such that a natural staggering most likely occur without a rigid requirement. Southern also supports the proposed EEI Draft language below as it does not change the intent of 7.1.4 and believes this is not a substantive change that could be made prior to final ballot. 7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	

While EEI supports the proposed language contained in Requirement R7, part 7.1.4, it could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We recommend the following language to address this concern (see proposed changes in boldface):

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

In the event this standard passes ballot, this change could still be implemented because it is a non-substantive change that is in-line with the intent of the language in the FERC order.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	
Document Name	
Comment	

FirstEnergy supports EEI's comments which state:

While EEI supports the proposed language contained in Requirement R7, part 7.1.4, it could be understood to require staggering implementation of a Corrective Action Plan even if simultaneous implementation would more quickly and wholly resolve the issue. We recommend the following language to address this concern (see proposed changes in boldface):

7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units, **if doing so would not unduly delay the completion of the Corrective Action Plan.**

In the event this standard passes ballot, this change could still be implemented because it is a non-substantive change that is in-line with the intent of the language in the FERC order.

Likes 0	
Dislikes 0	
Response	

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

The language provided may not meet FERC's possible meaning provided by the language in P88 regarding staggered implementation. Specifically, FERC referenced MOD-025 contained an approach for the Standard as a whole with a percentage of applicable units "staggered" over five (5) calendar years to get to 100%. The language as written provides staggering for CAPs not the Standard. Care needs to be taken with "staggered" or "phased-in" implementation language to ensure fairness as well as recognize efforts needed to implement Requirements for various sizes of entities. Industry should consider how to address single or lower-count Generator Owners. If language is written as "XX% of units must be completed by year Y" a single unit GO would need to be completed by year Y regardless of the percentage noted.

WECC appreciates the reasonable approach to implementing CAPs that may affect multiple units and supports the concept of reducing reliability risks quickly. However, it is not clear if there is staggering within the 24/48 month timeline or staggered past that time frame (i.e., beyond 24/48 months). If the language stays the SDT should fully explain what the phrasing means to avoid confusion in the industry as well as possible assumptions when compliance monitoring starts.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	

Document Name	
Comment	
Texas RE recommends clarifying what is meant by “shall stagger implementation” in Requirement part 7.1.4 as the phrase is vague and could be interpreted to mean various things to different registered entities.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. In reviewing responses to question 3, the Standard Drafting Team agrees with industry that R7.1.4 was perhaps too prescriptive in light of the already reduced timeline for implementing CAP(s). As such, the SDT decided to delete R7.1.4.	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

4. Do you agree that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority thereby providing the potential impacts a constraint declaration may have on the generating unit's performance to its Extreme Cold Weather Temperature? If you do not agree, or if you do agree but have an alternative approach that will more effectively address the concern, please provide your recommendation and, if appropriate, technical, or procedural justification.

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC disagrees with the proposed approach and believes that a more efficient and cost-effective approach would be for Requirement R8 to include an affirmative obligation for GOs to provide RCs, BAs, and TOPs with constraint declarations and the associated operating limitations whenever the constraint obligation is updated. This would ensure uniformity in the provision of Generator Cold Weather Constraint declarations across all RCs, BAs, and TOPs.

Likes 0	
Dislikes 0	

Response

Thank you for your response, the SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity.

Natalie Johnson - Enel Green Power - 5

Answer	No

Document Name	
Comment	

Enel supports the MRO NSRF comments and recommendations to Requirement R8.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	
Comment	

The SDT has addressed the issue of providing reliability-related information to the BA in the case of a declaration being made. However, the SDT has also created a paperwork exercise by requiring an annual review of every declaration. The NAGF recommends the requirement be changed to a review at least every 5 years. While we recognize that things are changing quickly in some areas, it is unlikely that the technology and price of this type of equipment will change significantly over the course of a single year. The NAGF provides the following revised Requirement R8 language for consideration:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation appreciates the SDT efforts, but suggests that 8.1 be changed to read “Update the Generator Cold Weather Constraints declaration within 12 months of a change occurring which requires an updated declaration to be made; and...”	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”	
Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	

Black Hills Corporation appreciates the SDT efforts, but suggests that 8.1 be changed to read “Update the Generator Cold Weather Constraints declaration within 12 months of a change occurring which requires an updated declaration to be made; and...”	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation appreciates the SDT efforts, but suggests that 8.1 be changed to read "Update the Generator Cold Weather Constriants declaration within 12 months of a change occurring which requires an updated declaration to be made; and..."	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	

EDP Renewables NA supports the comments submitted by the NAGF.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	No
Document Name	

Comment

The Requirement R8 Part 8.2 requires that "Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: ……. 8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable."

There is no compliance obligation to communicate the identified Generating unit(s) operating limitations in cold weather related to the capability and availability, to the Balancing Authority, at the time of the initial declaration, nor at the time of the subsequent updates.

The Reliability Coordinator awareness relies on IRO-010-4 Reliability Coordinator Data Specification and Collection "R1. The Reliability Coordinator shall maintain a documented specification for the data necessary for it to perform its Operational Planning Analyses, Real-time monitoring, and Real-time Assessments" which has Part "1.4. A **periodicity** for providing data."

The same applies for Transmission Operator under TOP-003-5 — Operational Reliability Data, for which the necessary data also relies on periodicity for providing data (see R1 Part 1.4)

Likes 0	
Dislikes 0	
Response	
Thank you for your response, the SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	No
Document Name	
Comment	
ISO-NE supports the SRC Comments:	
Likes 0	
Dislikes 0	
Response	
Thank you for your response, please see response to SRC.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
The removal of R8 Part 8.3 (as contained in Draft 1) from this draft seems to “weaken” the drafting team’s effort to address the FERC concern expressed in P 64 of the FERC order. The connection between the GO providing Generator Cold Weather Constraint declaration information to their BA is loosely tied through a meandering path of EOP-012-2 R8 Part 8.2 and R1 Part 1.2; and TOP-003-5 R2 Part 2.3, R4 and R5. There is also an opportunity for misinterpretation in that EOP-012-2 R1 has an “at least once every five calendar years” stipulation so a GO might	

not make a linkage between R8 Part 8.2 being an "update as needed" requirement versus only needing to update the data specified in R1 at least once every five calendar years. We understand that the drafting team may be limited in adding BA applicability to EOP-012-2 or bringing changes to TOP-003 into the project scope. Perhaps a footnote could be added for R1 Part 1.2 to help clarify the expectation that capability and availability data impacted by a Generator Cold Weather Constraint declaration shall be updated on an as declared basis.

We recommend the drafting team consider combining R8 with R7. The possibility of encountering and documenting/declaring a Generator Cold Weather Constraint is introduced in R7 Part 7.4. Requirement R8 then addresses follow-on activities associated with declaring a Generator Cold Weather Constraint. These could be added under Part 7.4 as follows eliminating the need for R8:

"*7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing actions contained within the Corrective Action Plan.* ***For each declaration:***

7.4.1. Perform an annual review and update the Generator Cold Weather Constraint declaration as needed; and

7.4.2 Update the operating limitations associated with capability and availability per Requirement R1 Part 1.2 if applicable."

Likes 0	
Dislikes 0	

Response

Thank you for your comment, the SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity. Additionally, the drafting team decided to keep R7 and R8 as separate requirements.

Junji Yamaguchi - Hydro-Quebec (HQ) - 5

Answer	No
Document Name	

Comment

We support OPG and Manitoba Hydro comments.

Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to OPG and Manitoba Hydro.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Thank you for your comment, please see response to OPG and Manitoba Hydro.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
We agree with some comments provided by ACES, EEI, MRO, NAGF, and Talen but are not going to restate each item specifically, as others have already restated them.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment, please see responses to those entities.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	No
Document Name	
Comment	
Structured, periodic winter-season data requests to declare operational constraints may not align with the timing of actual awareness or discovery of a 'constraint'. This would be a gap in reliability planning and resource adequacy for the region. This requirement, as written, doesn't allow for off-cycle notifications to the Entity's BA or TOP. Rather, consider language that requires the Entity to report the constraint within a certain timeframe (30 days, etc.) from the date of discovery. Another option would be to utilize CORES or Align to report 'living' operational data that the BA and TOP may have access to at any given time. The entity mapping tab in CORES could be used for access management control.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response, the SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity.	
Michael Whitney - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.	

Likes 0	
Dislikes 0	

Response

Thank you for your comments, please see response to those entities.

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

NO. We agree with some comments provided by Avista and Talen but are not going to restate each item specifically.

Likes 0	
Dislikes 0	

Response

Thank you for your comments, please see response to those entities.

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

While Avista agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. **U**pdate the Generator Cold Weather Constraint declaration**. when a change occurs that would require an updated declaration be made**; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

While we agree that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. **Update** the Generator Cold Weather Constraint declaration **when a change occurs that would require an updated declaration be made**; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	No
Document Name	

Comment

PNM & TNMP support EEI's recommended change to 8.1.

"Update the Generator Cold Weather Constraint declaration when a change occurs that would require an updated declaration be made; and"

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee’s comments.

The Requirement R8 Part 8.2 requires that “Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: ……. 8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.”

There is no compliance obligation to communicate the identified Generating unit(s) operating limitations in cold weather related to the capability and availability, to the Balancing Authority, at the time of the initial declaration, nor at the time of the subsequent updates.

The Reliability Coordinator awareness relies on IRO-010-4 Reliability Coordinator Data Specification and Collection "R1. The Reliability Coordinator shall maintain a documented specification for the data necessary for it to perform its Operational Planning Analyses, Real-time monitoring, and Real-time Assessments” which has Part “1.4. A **periodicity** for providing data.”

The same applies for Transmission Operator under TOP-003-5 — Operational Reliability Data, for which the necessary data also relies on periodicity for providing data (see R1 Part 1.4).

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Thank you for your response, the SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	
Comment	
If the GO creates a cold weather constraint it should be communicated via an agreed upon method with the system planning and operating authority. Cold weather constraints are only one of a variety of reasons why a unit capability maybe limited. These constraints/restrictions should/can be communicated upon an already approved method.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response, the SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	
Comment	
Suggest changing requirement as stated below: R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning 8.1. Preform a “five-year” review and update the Generator Cold Weather Constraint declaration as needed; and 8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
The minimum temperature value from R1.2.2 of EOP-012-2 is formally accepted in M3 of the standard as proof of ECWT capability, so this issue is neatly wrapped up from a compliance point of view. As a practical matter, however, the fact that NERC is looking solely for a DBT value can create uncertainty, potentially badly misleading RCs, BAs and TOPs obtaining this information via IRO-010 and TOP-003. A unit that has survived -5 F with zero wind and has an ECWT of -2 F, for example, may freeze-up at 0 F with a 20 mph wind (-22 F wind chill temperature). Using design data instead of historical operation for R1.2.2 does not necessarily improve matters. Our experience is that a heat tracing/insulation system designed per IEEE-515 for, say, -2 F/20 mph will typically get the job done at -2 F/0 mph, but the unit is likely to freeze at -2 F/10 mph, and it will definitely be forced offline at -2 F/20 mph. The emphasis on an ECWT also seems misplaced due to the fact that disasters such as Winter Storm Uri involved weather far below this temperature. The Technical Rationale document says that grid operators can then, “arrange for additional resources,” but power from elsewhere is unlikely to be available if decades worth of new power plants have been influenced by EOP-012-2 continent-wide to cut-out at or near the ECWT.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. While the SDT understand that the information you provided above is accurate, as a matter of administrative burden the requirement cannot require the GO to provide every potential extreme cold weather scenario that may occur and attempts to forecast how the unit may perform under those sceneries. The SDT maintains that changes to TOP-002 should help address this issue.

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

While Avista agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface:

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. (***Preform an annual review and - remove)*** **U**pdate the Generator Cold Weather Constraint declaration (***as needed*****. - remove) when a change occurs that would require an updated declaration be made**; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."

Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
While AES Clean Energy agrees R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we would recommend that the language be modified so that the Generator Owner only be required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, an annual review is just an administrative burden that provides no reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
While NV Energy agrees the R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, NV Energy would recommend that the language be modified so that the Generator Owner only be required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard; the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time.	

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall:

[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. *Preform an annual review and* **Update the Generator Cold Weather Constraint**

declaration *as needed* ***when a change to the declaration is made***; and

8.2. Update the operating limitations associated with capability and availability per

R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”

David Jendras Sr - Ameren - Ameren Services - 3

Answer	Yes
Document Name	

Comment

Ameren supports NAGF's comments on this project.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, please see response to NAGF.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
While EEI agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following suggested change in boldface: R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning] 8.1. **U**pdate the Generator Cold Weather Constraint declaration **when a change occurs that would require an updated declaration be made**; and 8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes

Document Name	
Comment	
The current NERC standards TOP-003 ad IRO-101 provide adequate capability for BA, TOP, and RCs to request and receive the information they need.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority. AZPS also agrees with comments submitted by EEI that the language should be modified so that a GO is only required to update a Generator Cold Weather Constraint declaration when a change occurs as an annual review just creates an administrative burden that provides no reliability benefit. AZPS agrees with EEI submitted alternative language to address this concern.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."	

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike	
Answer	Yes
Document Name	
Comment	
Tacoma Power supports the MRO NSRF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	
PG&E agrees the R8 language is sufficient to update the generating unit’s data specifications.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Alison MacKellar - Constellation - 5	

Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon is supporting EEI response to this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes

Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports the comments submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	

FirstEnergy supports EEI's comments which state:

While EEI agrees that Requirement R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, we recommend that the language be modified so that the Generator Owner is only required to update a Generator Cold Weather Constraint declaration when a change occurs. As currently written, requiring an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather Constraint is defined in this proposed standard, the Generator Owner would be required to ensure that Generator Cold Weather Constraint as claimed is appropriate at any given time. To address the concern, we offer the following :

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1. **U**pdate the Generator Cold Weather Constraint declaration as needed. when a change occurs that would require an updated declaration be made; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with "at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs."

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	Yes
Document Name	

Comment

While MRO NSRF agrees the R8 is sufficient to update the generating unit's data specifications that are available to the Balancing Authority, MRO NSRF would recommend that the language be modified so that the Generator Owner only be required to update a Generator Cold

Weather Constraint declaration when a change occurs. As currently written, an annual review is just an administrative burden that provides no reliability benefit. As the Generator Cold Weather

Constraint is defined in this proposed standard, the Generator Owner would be required to ensure

that Generator Cold Weather Constraint as claimed is appropriate at any given time.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall:

[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

8.1.

Update the Generator Cold Weather Constraint

declaration as needed ***when a change to the declaration is made***; and

8.2. Update the operating limitations associated with capability and availability per R1.2 if applicable.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, R8.1 has been updated with “at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs.”

Mia Wilson - Southwest Power Pool, Inc. (RTO) - 2 - MRO

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Helen Lainis - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ben Hammer - Western Area Power Administration - 1,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	

Answer	
Document Name	
Comment	

Texas RE does not agree with removing Requirement Part 8.3. The Generator Owner (GO) should be required to provide its declaration to the Balancing Authority, Reliability Coordinator, or Transmission Operator, along with justification for that declaration. Texas RE is concerned that without an explicit requirement, the GO's constraint declarations may not be communicated to the Reliability Coordinator, Balancing Authority or Transmission Operator that are expecting reliable operation of the units. The Time Horizons for IRO-010 and TOP-003 data submissions do not match with EOP-012-2 applicable Time Horizon. Therefore, Texas RE recommends SDT consider including reporting the operating limitations of the generating units during extreme cold weather conditions to the BA/RC and retaining the previous 8.3 language in the standard for this annual one-time submission with additional schedule requirement for audit purposes. Texas RE recommends the following requirement language:

8.3. Provide the Generator Cold Weather Constraint declaration to the Balancing Authority, Reliability Coordinator, or Transmission Operator within 90 days of completing the annual review and update as well as justification for that declaration.

Likes 0	
Dislikes 0	

Response

Thank you for your response. The SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	
Comment	

FERC did mention the possibility of a Reliability Coordinator being a planning and operational entity. Unfortunately, FERC did not include Transmission Operators explicitly, but the language in E0P-012 was utilized in IRO-010 and TOP-003 for RCs, BAs, TOPs and GOs all to have the same language. This makes the language provided by the SDT reasonable in terms of updating information to be utilized by the RC/BA/TOP but falls short of notifying the entities regarding a declaration. It will not be clear whether a generator units' capability and availability was the cause of cold weather protection measures needing correction or other factors that may change the unit's capability and availability. Putting the onus on the RCs/BAs/TOPs to call out specifics on capability and availability due to cold weather constraint declaration may result in differences in implementation and expectations across the industry. As important constraint declarations are for ensuring reliable operations, the notifications should be made explicitly so that planning and operating entities have a clear understanding of the CAPs impact to capability and availability.

When compliance monitoring begins, as written, an entity will need to demonstrate when CAP-related changes occurred related to R1 information. An entity's internal control(s) regarding provision of data and awareness for planning and operating entities may be explored.

SDT should consider a sub-requirement requiring notification to include the BA, RC, TOP, and GOP for declaration. This may be considered somewhat administrative in nature but provision of data through the method selected between entities (e.g., often SCADA) may not equate to notification of a change due to the facts and circumstances (especially those that support a declaration).

Additionally, to satisfy FERCs apparent need to know about declarations, the SDT (or NERC) should consider a Periodic Data Submittal for declarations to maintain awareness.

Likes 0	
Dislikes 0	

Response

Thank you for your response, the SDT team has discussed in depth requiring the GOs to provide the RC, BA, and TOP updated constraint declarations as a part of this standard. The SDT feels standards IRO-10-2 and TOP-3-5 are sufficient, as written, to require the GOs to provide updated operating limitations to the RC, BA, and TOP on a predetermined periodicity.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.do

5. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. Do you agree with this proposed timeframe? If you think an alternate timeframe is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

Ben Hammer - Western Area Power Administration - 1,6

Answer	No
Document Name	

Comment

WAPA does not agree with the new dates and recommends remaining with EOP-012-1 original dates.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates.

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

A schedule is needed for implementation of presently Non-GUP winter reliability technologies that become viable at some future time. There may come a day when wind turbine blade anti-icing becomes a proven alternative, for example, and wind farms owners will then need an extensive period for installing retrofits.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. In Requirement R7 Part 7.1 the SDT has established appropriate timeline requirements for completing actions required by Corrective Action Plans. Requirement R7 Part 7.3 allows for updating the CAP, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1. The SDT believes that no adjustment of the R7 timelines or the Standard’s Implementation Plan is required.

Wendy Kalidass - U.S. Bureau of Reclamation - 5

Answer	No
Document Name	

Comment

Reclamation does not agree with the new dates and recommends remaining with EOP-012-1 original dates.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment	
OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee’s comments. FERC directed NERC to address concerns relating to the extensive period before generators must implement freeze protection measures or develop corrective action plans. This is not equivalent with the GOs having the capability to operate at the ECWT or a CAP written by the effective date of the requirement. The major and necessary decrease in reliability risk is achieved through the mere implementation of freeze protection measures, which will eliminate the simultaneity of the generator cold weather events. Appropriate planning should ensure adequate reserve is available to replace the generating units subject to a cold weather event.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT agrees that implementation of freeze protection measures should reduce the simultaneity of Generator Cold Weather Reliability Events.	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
NO. It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. Please see the revised language for Generator Cold Weather Constraint definition as a reference for when cost can be used as a constraint.	
Michael Whitney – Northern California Power Agency – 3,4,5,6	
Answer	No
Document Name	
Comment	
It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the revised language for Generator Cold Weather Constraint definition as a reference for when cost can be used as a constraint.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	No
Document Name	
Comment	
We do not agree with the shortened time frame to identify and document a CAP. This process requires an engineering analysis to first identify all GCWCCs and then assess them for sufficient weatherization measures. Not only does this take time to complete, it poses a challenge to identify and schedule a qualified vendor for GOs with multiple plants in their fleet. Thanks to this standard, vendors with this specialized expertise are now competitively sought after. Reducing the clock not only increases the challenge, but also the market price of the service, making this shortened time frame unduly burdensome. We support the original 4/1/2028 date.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the revised language for Generator Cold Weather Constraint definition as a reference for when cost can be used as a constraint.	
Richard Vendetti – NextEra Energy – 5	
Answer	No
Document Name	
Comment	
Too restrictive. We need to check for feasibility. What alternatives exist if CAP cannot be put in place due to design limitations? Need to have the ability to file a declaration if the existing equipment cannot be modified to run below ECWT or to run during an icing event. With the equipment that already exists there are situations where ECWT is literally 2 degrees lower than design temperature and there is either nothing that can be done or cost prohibitive to the business.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Please see the revised language for Generator Cold Weather Constraint definition as a reference for when a constraint can be taken.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG comments.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Thank you for your comment, please see response to OPG.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No
Document Name	
Comment	
We support OPG comments.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment, please see response to OPG.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	No
Document Name	
Comment	
PG&E disagrees with the proposed timeframe. PG&E recommends an extended period such as 2 years from the approval date to implement R5 which allows PG&E time to establish the “annual” training periodicity.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	No
Document Name	
Comment	
Minnesota Power supports the North American Generator Forum’s (NAGF) comments.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment, please see the SDT’s response to NAGF.	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	No
Document Name	
Comment	
Requirement 3 addresses operating requirements for existing units and units that commission prior to October 1, 2027. There is currently no limitation on the time a unit must operate at its calculated extreme cold weather temperature. The previous draft as well as the exiting, approved version of EOP-012 contains a one (1) hour operating limitation for existing units at the extreme cold weather temperature that no appears to have been eliminated from the proposed version. Dominion Energy recommends that this 1-hour operating requirement be reinstated in the Standard rather than the current unbounded operating requirements for existing units.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Item 8 of the 3/25/2023 FERC Order directed “NERC to modify the one-hour continuous operation requirement”. The SDT chose to not select a specific number of hours that the lesser requirement for existing units must be met.	
Ruida Shu – Northeast Power Coordinating Council – 1,2,3,4,5,6,7,8,9,10 – NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	
FERC directed NERC to address concerns relating to the extensive period before generators must implement freeze protection measures or develop corrective action plans. This is not equivalent with the Gos having the capability to operate at the ECWT or a CAP written by the effective date of the requirement.	

The major and necessary decrease in reliability risk is achieved through the mere implementation of freeze protection measures, which will eliminate the simultaneity of the generator cold weather events. Appropriate planning should ensure adequate reserve is available to replace the generating units subject to a cold weather event.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT agrees that implementation of freeze protection measures should reduce the simultaneity of Generator Cold weather Reliability Events.	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
EDP Renewables NA supports the comments submitted by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see the SDT’s response to NAGF.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	

Black Hills Corporation does not agree with the new dates and recommends the dates remain the same as original dates in EOP-012-1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation does not agree with the new dates and recommends the dates remain the same as original dates in EOP-012-1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	

Black Hills Corporation does not agree with the new dates and recommends the dates remain the same as original dates in EOP-012-1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF continues to have concerns that the hard limit of 24 months for existing equipment and 48 months for new equipment to address cold weather will cause entities to create a work of fiction for CAPs that must address a large number of units. As an example, there may come a day when wind turbine anti-icing becomes a proven alternative, and wind farm owners will then need an extensive period for installing retrofits. If a large number of wind turbine owners are looking to implement this technology at one time, there will be issues with outage scheduling, procurement of the parts, procurement of the labor and equipment to install the parts, etc. We note that multiple Balancing Authorities currently tout the amount of wind generation supporting their load service. Just scheduling of outages for the purpose of addressing cold weather effort may take a significant time when layered on top of preventative and forced maintenance. For this reason, the limited time period for the CAPs will cause the creation of a CAP to meet the requirement that is not based in reality. This should not be the intent of any regulation. The NAGF has proposed a reasonable alternative that still incorporates a limitation on the time allowed while addressing the fact that there are limited resources and maintenance periods for generators to utilize for outages. The implementation plan for the overall standard appears reasonable based on what is needed to be completed at a specific time.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment. In Requirement R7 Part 7.1 the SDT has established appropriate timeline requirements for completing actions required by Corrective Action Plans. Requirement R7 Part 7.3 allows for updating the CAP, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1. The SDT believes that no adjustment of the R7 timelines or the Standard's Implementation Plan is required.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren supports NAGF's comments on this project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see the SDT's response to NAGF.	
Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro	
Answer	No
Document Name	
Comment	
BC Hydro's assessment is that a 24-month implementation timeline would be needed to analyze the additional precipitation inclusions, determine all required freeze protections, create PM programs, setup processes to track CAPs and schedule necessary outages for CAPs implementation and completion for all units in scope while also observing environmental constraints, such as birds nesting and fish flows.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	

The SRC recommends that the drafting team further clarify the language regarding CAPs in Requirement R7. As proposed, R7 does not appear to include sufficient focus on CAP implementation. Additionally, the SRC reads Part 7.1.1 to require a GO to "[l]ist the action(s) which address(es) existing equipment or freeze protection measures" and to implement those within 24 calendar months, while Part 7.1.2 requires a GO to "[l]ist the action(s) which require(s) new equipment or freeze protection measures" and implement those within 48 calendar months. However, because some corrective actions may address existing equipment and also require new measures, these categories are not necessarily mutually exclusive, and an ambiguity could therefore arise regarding the appropriate timeline that would apply in such a case. The SRC presumes that the CAP implementation timeline should depend on whether new equipment is required to be installed, and not on whether the CAP "addresses" existing equipment or measures. Regarding the timeline, new "measures" that don't require new equipment would not seem to require more than a year to complete, while new equipment should not require more than two years in the vast majority of cases. Therefore, the proposed 24- and 48-month timelines seem excessive.

The SRC suggests the following revised language for R7, Parts 7.1 and 7.2:

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1 **(new subpart**) Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, document the generator's best efforts to promptly implement all immediate and near term actions that it can take prior to the next upcoming winter season to winterize the generating unit(s) to operate at its calculated Extreme Cold Weather Temperature;

7.1.2 (in place of 7.1.1) Specify each corrective action that does not require the installation of new equipment but which cannot be implemented prior to the next upcoming winter season. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 12 months of development of the Corrective Action Plan;

7.1.3. (in place of 7.1.2) Specify each corrective action that requires the installation of new equipment. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 24 months of development of the Corrective Action Plan;

7.1.4. (was R7.1.3) List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and

7.1.5. (was R7.1.4) For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units and include within the CAP supporting documentation for the time needed to implement those actions and justification of the staggering approach adopted.

Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT believes that GOs can use appropriate judgement to describe corrective actions that either affect existing or require new equipment and apply the appropriate timeline. The SDT discussed changing implementation timelines and chose not to do this as the majority of the industry supported the current 24- and 48-month periods within R7. Please see the technical rationale for the justification for 24 and 48 months	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista can comply within this timeframe.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	

Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
The MRO NSRF agrees the shortened timeframe is adequate.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	

FirstEnergy has no objections to the Implementation Plan presented.

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	Yes
Document Name	

Comment

PNM & TNMP supports the EOP-012-2 IP timeframe as proposed.

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Mike Magruder - Avista - Avista Corporation - 1

Answer	Yes
Document Name	

Comment

We can comply with this timeframe.

Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon is supporting EEI response to this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS does not oppose this change.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes

Document Name	
Comment	
The proposed timeframe balances the need for a rapid implementation and the capability of GOs to plan, schedule, and implement additional freeze protection requirements.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
While AES Clean Energy agrees with the proposed timeline, we want to bring NERC and Standard Drafting Team's attention concerning unintended consequences of this timeline. For example, when wind turbine blade de-icing technology becomes commercially available, many windfarm Generator Owners will be reaching out to OEMs or vendors to order the kits and schedule with contractors to install. This will lead to outage scheduling issues, supply chain issues, as well as procuring labor for the installation work. This could also result in reliability issues if certain BA's footprint has large amount of wind generation taken offline for extended period of time for the work to be performed.	
Likes 0	
Dislikes 0	
Response	

Thank you for your support. Requirement R7 Part 7.3 allows for updating the CAP, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1. The SDT believes appropriate CAP extensions can be made should circumstances such as those described above occur, and that therefore, no adjustment of the R7 timelines or the Standard's Implementation Plan is required.	
Natalie Johnson - Enel Green Power - 5	
Answer	Yes
Document Name	
Comment	
No comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Helen Lainis - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	
Document Name	
Comment	
No Additional Comments	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%20EOP-012-2_102723.docx

6. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	
It is difficult for the industry to determine the full cost implications of EOP-012-2. Particularly with the development of Corrective Action Plans as a result of extreme weather, it is premature, to determine at this time, the cost implications until it is fully known what is actually involved.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	No
Document Name	
Comment	

Invenergy believes the SDT improved upon the previous draft, but, absent a comprehensive cost-benefit analysis, is not in a position to comment on the cost-effectiveness of the modifications in EOP-012-2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	No
Document Name	
Comment	
Suggestions: • Run Models/Simulations evidencing the key recommendations are achievable • Publish Cost Recovery Impact Reports and share with Registered Entities • Perform a comprehensive cost benefit analysis	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	No

Document Name	

Comment

We do not believe that either following changes are a cost-effective solution:

- The inclusion of "impacts of freezing precipitation on equipment" in the definition of "Generator Cold Weather Reliability Event"
    - By including the impacts of freezing precipitation on equipment, the proposed revision could potentially cause the industry to adopt an iterative approach to compliance. Furthermore, modifying the definition in such a manner could cause the GO to be at risk of non-compliance with Requirement R6 even when fully compliant with R2 or R3 as applicable.
        - As written, Requirements R2 and R3 require the GO to implement freeze protection measures based on the Extreme Cold Weather Temperature; however, the GO is not required to address the impacts of freezing precipitation on equipment under either Requirement.
- The modification to Requirement R4 Part 4.4 changing "may include" to "includes"
    - This seemingly minor change has enormous compliance consequences for the GO.
        - By requiring the GO to document freeze protection measures used to reduce the cooling effects of wind and the effects of freezing precipitation, the proposed change will force the GO to evaluate and possibly implement such measures. This is further exacerbated by the fact that Requirements R2 and R3 only require the GO to implement freeze protection measures based on temperature alone.
            - We believe such an evaluation and subsequent implementation is cost prohibitive and an undue compliance burden for the GO.
        - We recommend reverting to the previous language for Requirement R4 Part 4.4.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The standard does account for the impacts of freezing precipitation and cooling effects of wind to meet the objectives of Key Recommendations. Additionally, the SDT has determined that GOs have the responsibility to determine which freeze protection measures are needed to account for the impacts of freezing precipitation and cooling effects of wind. The standard does not set a specific bar for existing generating units and as such, GOs should use their past experience and good utility practice to determine what freeze protection measures are required to operate to their extreme cold weather temperature reliably.

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	No
Document Name	
Comment	
We do not agree with the way this standard draft is being developed. We consider these key recommendations implementations to be non-cost effective. The purpose of EOP-012 standard is: “To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.” **There is no reliability gap for the Canadian Entities, as these entities are successfully operating in a Cold Climate through the associated extremes**, with the aid of their current operating instructions, procedures, training, and specific station design. The concern for the GO/GOP with less than adequate winterization plan in place (i.e., Texas, SPP) is not applicable to Canadian entities. In those regions where the GO/GOP do not have winterization implemented, there is always the potential for concurrent cold weather events (outages due to freezing), when temp drops below freezing point and all the GO/GOP are affected at the same time, triggering cascading events. This is not the case for the Canadian entities, and for that reason there should be an **exception in the applicable Facilities, to exclude the Canadian GO/GOP facilities**, as a cost-effective approach, without the undue compliance burden, towards the reliable operation of these facilities.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet	

or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.

Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen

Answer	No
Document Name	

Comment

ISO-NE supports the SRC Comments:

The ECWT is calculated to a temperature higher than actual minimum experienced. The Standard as written may not prevent the freezing of generating equipment during a recurrence of Winter Storm Uri even if all entities are EOP-012-2 compliant.

At a minimum the ECWT, should be calculated to include those temperatures that were an initial driving force for the development of the EOP-012 Standard.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The current calculation for ECWT has been approved by industry and FERC.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

We remain concerned that EOP-012-2 being applicable to nuclear generation sites is not cost effective. As we commented on Draft 1, the nuclear power industry is used to working under NRC regulation and INPO guidance in this area, and adding another layer of NERC requirements (potentially overlapping) adds an extra burden to the site staffs and confusion on what actions are necessary and required.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT maintains that the cold weather report identified that nuclear generation experienced freezing issues during the event and did not suggest that nuclear generation should be excluded from these standards.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	No
Document Name	
Comment	
AEPC signed on to ACES comments: We do not believe that either following changes are a cost-effective solution: • The inclusion of “impacts of freezing precipitation on equipment” in the definition of “Generator Cold Weather Reliability Event” o By including the impacts of freezing precipitation on equipment, the proposed revision could potentially cause the industry to adopt an iterative approach to compliance. Furthermore, modifying the definition in such a manner could cause the GO to be at risk of non-compliance with Requirement R6 even when fully compliant with R2 or R3 as applicable. ▪ As written, Requirements R2 and R3 require the GO to implement	

freeze protection measures based on the Extreme Cold Weathe Temperature; however, the GO is not required to address the impacts of freezing precipitation on equipment under either Requirement. • The modification to Requirement R4 Part 4.4 changing “may include” to “includes” o This seemingly minor change has enormous compliance consequences fo the GO. ▪ By requiring the GO to document freeze protection measures used to reduce the cooling effects of wind and the effects of freezing precipitation, the proposed change will force the GO to evaluate and possibly implement such measures. This is further exacerbated by the fact that Requirements R2 and R3 only require the GO to implement freeze protection measures based on temperature alone. • We believe such an evaluation and subsequent implementation is cost prohibitive and an undue compliance burden for the GO. ▪ We recommend reverting to the previous language for Requirement R4 Part 4.4.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The standard does account for the impacts of freezing precipitation and cooling effects of wind to meet the objectives of Key Recommendations. Additionally, the SDT has determined that GOs have the responsibility to determine which freeze protection measures are needed to account for the impacts of freezing precipitation and cooling effects of wind. The standard does not set a specific bar for existing generating units and as such, GOs should use their past experience and good utility practice to determine what freeze protection measures are required to operate to their extreme cold weather temperature reliably.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments, please see response to OPG and Manitoba Hydro.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	No
Document Name	
Comment	
We support OPG and Manitoba Hydro comments.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	

Thank you for your comments, please see response to OPG and Manitoba Hydro.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
The SDT has not stated a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply someone says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	No
Document Name	
Comment	
We do not believe the modifications take the cost burden into account. The technical rationale is very light when attempting to support Requirement R1 and its sub-parts. There is little value requiring at-design unit data for existing facilities, especially if they have been in operation for several years. Spending resources to ascertain design parameters pulls focus and resources away from completing CAPs with no value added. Additionally, there are a lot of market overtones to the FERC directives. We agree that the line will always be blurred when it comes to reliability and resource adequacy, however it should not present a financial burden through required upgrades (within challenging	

timelines) to doubly ensure continuous operations at times of peak demand. These costs are ultimately passed down to the rate payer in many cases, meaning that cost burdens of the plant owner would impact the end user. This scenario creates an inability to pay for the same electricity all these measures are meant to preserve, making the reliability aspect moot at times of critical need.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has included a broad cross section of industry members to ensure that standards are reasonable and take into account multiple viewpoints.	
Michael Whitney - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
The SDT has not stated a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply someone says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No

Document Name	
Comment	
NO. The SDT has not stated a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply someone says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	
Comment	
This standard is really directed towards thermal generating units that utilize steam or water in their process. It would be much more cost effective for the industry and Avista if the SDT and FERC were to determine the resources most at risk for cold weather compliance restrictions and focus this reliability guidance on those units. For instance hydro facilities have near zero cold weather events, as do simple cycle combustion turbines. Our experience with following the guidance for developing cold weather compliance plans, training, interviewing our folks and determining ECWT for each hydro and simple cycle facility has resulted in very minor changes to the procedures, practices and equipment at these facilities. We feel that the risk to these facilities during extreme cold weather events is very low. It would be most economic for the industry and Avista if the SDT and FERC were to verify the most at risk resources and limit the boundaries of this standard to cover only the at risk generating resource types.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The cold weather report identified that multiple types of generation experienced freezing issues during the event and did not suggest that only specific resource types be targeted by this standard. The drafting team recognizes that different resource types face different risks, and the standard is intended to accommodate all resource types.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
NRG believes that this version is an improvement to the previous version of this draft. However, without any measures towards cost recovery for those entities requiring additional cold weather protection, by default, this remains as not being cost effective.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	
Comment	
This standard is really directed towards thermal generating units that utilize steam or water in their process. It would be much more cost effective for the industry and Avista if the SDT and FERC were to determine the resources most at risk for cold weather compliance restrictions and focus this reliability guidance on those units. For instance hydro facilities have near zero cold weather events, as do simple	

cycle combustion turbines. Our experience with following the guidance for developing cold weather compliance plans, training, interviewing our folks and determining ECWT for each hydro and simple cycle facility has resulted in very minor changes to the procedures, practices and equipment at these facilities. We feel that the risk to these facilities during extreme cold weather events is very low. It would be most economic for the industry and Avista if the SDT and FERC were to verify the most at risk resources and limit the boundaries of this standard to cover only the at risk generating resource types.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The cold weather report identified that multiple types of generation experienced freezing issues during the event and did not suggest that only specific resource types be targeted by this standard. The drafting team recognizes that different resource types face different risks, and the standard is intended to accommodate all resource types.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
NRG believes that this version is an improvement to the previous version of this draft. However, without any measures towards cost recovery for those entities requiring additional cold weather protection, by default, this remains as not cost effective.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	No

Document Name	
Comment	
PNM & TNMP have concern with winterization of cold weather critical components affecting the reliability of summer operations during high temperature conditions. The cost is to be determined being cost effective for both winter and summer conditions.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT understands this concern and believes that the standard is written in a way to allow temporary freeze protection measures to be installed for the winter season which will not impact summer capability. In addition, the GOs have an ability to take a declaration if freeze protection measures would overly impact operation outside of winter conditions.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments. We do not agree with the manner in which this standard draft is being developed. We consider these key recommendations implementations to be non-cost effective. The purpose of EOP-012 standard is: "To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units." **There is no reliability gap for the Canadian Entities, as these entities are successfully operating in a Cold Climate through the associated extremes**, with the aid of their current operating instructions, procedures, training, and specific station design.	

The concern for the GO/GOP with less than adequate winterization plan in place (i.e., Texas, SPP) is not applicable to Canadian entities.

In those regions where the GO/GOP do not have winterization implemented, there is always the potential for concurrent cold weather events (outages due to freezing), when temp drops below freezing point and all the GO/GOP are affected at the same time, triggering cascading events.

This is not the case for the Canadian entities, and for that reason there should be an **exception in the applicable Facilities, to exclude the Canadian GO/GOP facilities**, as a cost-effective approach, without the undue compliance burden, towards the reliable operation of these facilities.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard’s requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

Operating in “extreme” cold weather is normal operating conditions. This standard appears to be more relevant for generating units (GSU in or out of scope debatable) when they are not located inside a powerhouse. For hydraulic generators it is unclear if run of the river water is to

be considered “fuel”. It doesn’t appear to be specifically excluded. Again it is difficult to see the rationale and benefits for this standard towards hydraulic generating units in our region.	
Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	
Response	
Thank you for your comment. The SDT reviewed and discussed industry concerns related to water as a fuel source. The definition of Fixed Fuel Supply Component specifically identifies "equipment that supports the reliable delivery of fuel" and not the fuel itself eliminating the water used to fuel hydropower plants. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard’s requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.	
Wendy Kalidass - U.S. Bureau of Reclamation - 5	
Answer	No
Document Name	
Comment	
Reclamation does not agree. As annotated in this form, multiple requirements are being added which burdens the facilities with excessive requirements and equipment installation.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
See our comments above.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Ben Hammer - Western Area Power Administration - 1,6	
Answer	No
Document Name	
Comment	
WAPA does not agree. As annotated in this form, multiple requirements are being added with no technical rationale which burdens the facilities with excessive requirements and equipment installation.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comments.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	No
Document Name	
Comment	
This standard is really directed towards thermal generating units that utilize steam or water in their process. It would be much more cost effective for the industry and Avista if the SDT and FERC were to determine the resources most at risk for cold weather compliance restrictions and focus this reliability guidance on those units. For instance hydro facilities have near zero cold weather events, as do simple cycle combustion turbines. Our experience with following the guidance for developing cold weather compliance plans, training, interviewing our folks and determining ECWT for each hydro and simple cycle facility has resulted in very minor changes to the procedures, practices and equipment at these facilities. We feel that the risk to these facilities during extreme cold weather events is very low. It would be most economic for the industry and Avista if the SDT and FERC were to verify the most at risk resources and limit the boundaries of this standard to cover only the at risk generating resource types.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The cold weather report identified that multiple types of generation experienced freezing issues during the event and did not suggest that only specific resource types be targeted by this standard. The drafting team recognizes that different resource types face different risks, and the standard is intended to accommodate all resource types.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	Yes
Document Name	
Comment	

Ameren supports NAGF's comments on this project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to NAGF.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
With the utilization of Good Utility Practice, the SDT has brought into the standard a much better hurdle for use by a Generator Owner to make a declaration. However, the issues identified in Question 1 above must be addressed.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to Question 1.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
The requirement for good utility practice brings a measure of reasonableness from a cost and technology perspective that is acceptable.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson	
Answer	Yes
Document Name	
Comment	
PG&E agrees the modifications meet the key recommendations but can not comment on the cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy has no objections to the approaches presented.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
The MRO NSRF has no comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Robin Hill - EDP Renewables North America LLC - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5, Group Name CHPD Voters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Micah Runner - Black Hills Corporation - 1	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost-effectiveness.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Claudine Bates, Black Hills Corporation, 5, 6, 1, 3; Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	

Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	
Document Name	
Comment	
AZPS will not comment on cost effectiveness of this change.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	
Document Name	
Comment	
NA	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	

Comment	
No Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	
Document Name	
Comment	
Duke Energy’s focus is to assure the effective and efficient reduction of risks to the reliability and security of the grid and will not provide comments on the cost effectiveness of the proposed changes.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	

7. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Thomas Foltz - AEP - 5

Answer	
Document Name	

Comment

AEP believes that the first bullet of in R1.2.2 should have an "or" added to the end, as was previously added to the second bullet. As a result, an "or clause" would collectively apply to all three bulleted items. The SDT's feedback in their Consideration of Comments document from September 2022 clearly indicates this as their original intent, however adding this "or" to the first bullet would be a step forward in clarity.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once.

Ben Hammer - Western Area Power Administration - 1,6

Answer	
Document Name	

Comment

The inclusion of concurrent wind speed and precipitation requirements in this document enacts an undue burden and cost on industry for a measure that has been added without technical rationale or justification. Wind/precipitation analysis for each component without historical information is of no value added and analyzing individual pieces of equipment for the ability to withstand wind/precipitation is not cost effective and is over-reach.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT believes the language meets the objectives of Key Recommendation 1c in the simplest manner. The standard language does not require analysis on each component, but is structured to look at the units as a whole.

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	
Document Name	

Comment

Please consider the following comments:

1. Remove the heated building exclusion from the definition of Generator Cold Weather Critical Component.

a. The expanded definition for Generator Cold Weather Critical Component is misleading and does not align with the explanation provided in the technical rationale document for EOP-012-2 or with statements made by the Project 2021-07 team during public webinars. From the technical rationale document and webinar comments, the intent was to exclude critical components inside buildings with dedicated building heating equipment. The new definition employs the phrase “heating source that regularly maintains the space”. This phrasing opens the definition to heating sources that are not devices dedicated to building heating.

b. Additionally, the new definition does not support equipment reliability. The exclusion is based on the idea that freeze protection in the form of a building and dedicated heating is already in place to protect critical equipment. By excluding these components, the new definition would also exclude the associated freeze protection measures from requirements R4.5, which requires annual maintenance on freeze protection measures for critical components. Requirement R4.5 mandates maintenance activities to ensure improved equipment reliability, prevent winter reliability events, and prevent CAP entries on events. Excluding buildings and their dedicated heating equipment from the requirements of R4.5 puts the industry at risk of more winter reliability events and does not align with operating experience events learned during Winter Storm Uri related to open doors, windows, etc.

2. Requirement R5 needs to be modified to exclude stations that have no actionable activities in their cold weather preparedness plan as defined in requirement R4.

a. Requirement R4 sets the minimum requirements for the contents of the cold weather preparedness plan. The only actionable item in R4 is R4.5, which requires annual inspection and maintenance of freeze protection measures. Requirement R5 requires training for all maintenance or operations personnel responsible for implementing the cold weather preparedness plan. If a station has no activities under R4.5, the station will have no personnel that can be identified as a training audience for R5. Stations may not have freeze protection measures due to factors such as geography, plant design, or an ECWT value above 32oF. Based on the current wording of R5 and comments made by the Project 2021-07 team, stations without actions under R4.5 would still be required to identify and train personnel that do not exist.

3. To efficiently implement compliance requirements for NERC Standard EOP-012-2, please publish the final version of EOP-012-2 RSAW at least 60 days prior to the proposed EOP-012-2 effective date of October 1, 2024.

Likes 0	
Dislikes 0	

Response

Thank you for the comments. The intent of the SDT's approach within the Technical Rationale was to recognize that equipment within buildings are, by virtue of the building, protected. The SDT therefore believes the definition of GCWCC sufficiently addresses components inside permanent building with a heating source.

Regarding R5, if an entity has an ECWT above 32 degrees, then it does not have any Cold Weather Critical Components. The entity is not expected to operate below its ECWT, and therefore , no freeze protection methods would be applicable. This would be documented in the cold weather plan. In the original EOP-011, the training requirement applied to all units, without exception. The FERC order did not approve the timing on EOP-012 until exceptions were aligned. A cold weather plan is required of all units. The SDT expects that the number of units with an ECWT below 32 degrees will be exceptionally small.

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	
Document Name	

Comment	
The MRO NSRF has no comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	
Document Name	
Comment	

We appreciate the drafting team revising the generator cold weather critical component term to exclude components or systems located inside a heated permanent building. For hydraulic generating units this encompasses most, if not all, of the generating components except for GSU's (and potentially generator breakers) located outside the powerhouse.

R1, 1.2 uses the term generating units cold weather data to include operating limitations in cold weather and generating units minimum design/operating temperature. With the hydraulic generator being inside a powerhouse the inside ambient temperature is significantly different than the outside ambient temperature. If none of the “generating unit” is outside how do these calculations help the transmission system planners and operators? If just the GSU is outside, then we are doing all this work to prove the transformer can operate outside in cold weather. In Canada, cold weather is not abnormal during winter months and is typical operating conditions. For example, the daily minimum temperature is below zero degrees for our generating units for more than half of the year in 2022. This requirement appears to create more work for the GO without additional benefits to the system planning and operating authority. The technical rational focuses on wind and precipitation as a factor but on the other side does not consider if it is inside and the outdoor ambient temperature has no effect.

In section R1 1.2.2 are all 3 bullets required? Design temp, historical operating temp & engineering analysis? M1 paragraph seems to indicate design or operating or engineering analysis that supports the unit minimum temperature. Consider adding an “or” after the first bullet point in R1 1.2.2 section

For the extreme cold weather temperature, is there any consideration if a GO operates annually around this temperature? Is there an allowance/bandwidth of calculated extreme cold weather temperature that would not prompt updating the cold weather preparedness plan? If it is only 1 degree lower than the previous calculated, it is hard to imagine that any cold weather protective measures and plans would need to be updated. Operating in cold weather is normal operation for our utility. For example, the ECWT is -37.0 °C (-34.6 °F) for our south generating units, and -40.0 °C (-40.0 °F) for our north generating units. The cold weather protective measures and plans are the same for these units.

R3. Again this seems like a lot of work for a hydraulic generating unit that is entirely inside. Even if the GSU is outside it appears this will just be a documentation exercise. Again we operate in (extreme) cold weather annually.

R4. Appears to be a lot of documentation for a hydraulic generating unit especially if it has no cold weather critical components. Extra administration and documentation without increased reliability. As mentioned before, our generating units are operating below 32 degrees Fahrenheit (zero degrees Celsius) for more than half of the time in a year. Cold weather operation in winter is our normal operation. It significantly increases compliance costs if documentation is required for cold weather preparedness plans because they are embedded in the well developed and practiced maintenance and operation procedures. There is a risk of reducing reliability if the routines are broken when trying to reorganize the maintenance and operation procedures.

R5. Extra costs associated with specific cold weather training that is normal operating duties for our region. Do not see this as a way to increase reliability.

Likes 1	Hydro-Quebec (HQ), 1, Turcotte Nicolas
Dislikes 0	

Response

Thank you for your comments. The technical rationale document provides guidance related to GCWCC. The SDT chose to define a term which specifies a subset of components that may be susceptible to freezing, and are critical to the operation of generating units. GSUs are typically outdoors and designed for the climate they're used in. Additionally, the Reliability Guideline Generating Unit Winter Weather

Readiness—Current Industry Practices–Version 4 provides a list of potential critical components that generators should consider when implementing freeze protection. The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once.	
Jeffrey Streifling - NB Power Corporation - 1	
Answer	
Document Name	
Comment	
We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather "applicable generating units". In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement. Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of "fixed fuel supply component". Please add an "or" after the first bullet in R1, section 1.2.2.	

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

Requirement 1.1.1 states:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]"

It is suggested to add "if required" or similar wording to the requirement:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan, if required, under Requirement R4 […]"

The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden.

R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4: We don't have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The intent of the SDT's approach within the Technical Rationale was to recognize that equipment within buildings are, by virtue of the building, protected. The SDT therefore believes the definition of GCWCC sufficiently addresses components inside permanent building with a heating source. The SDT has provided some updated working to R3 that should address some of the concern.

The SDT reviewed and discussed industry concerns related to water as a fuel source. The definition of Fixed Fuel Supply Component specifically identifies "equipment that supports the reliable delivery of fuel" and not the fuel itself eliminating the water used to fuel hydropower plants.

The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once.

The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.

Fon Hiew - NB Power Corporation - New Brunswick Power Transmission Corporation - 5	
Answer	
Document Name	

Comment

We support Hydro Quebec's comments:

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather "applicable generating units". In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of "fixed fuel supply component".

Please add an "or" after the first bullet in R1, section 1.2.2.

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

Requirement 1.1.1 states:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]"

It is suggested to add "if required" or similar wording to the requirement:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan, if required, under Requirement R4 […]"

The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden.

R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4: We don’t have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. FERC had concerns related to exemptions in applicability and the SDT does not believe a geographic or generation source exemption is required. Many regions that have operated in cold climates may be able to meet the requirements of the standard with minimal effort as they have operated successfully for long periods of time. The use of existing operating processes and procedures provide the foundation. The SDT has provided some updated working to R3 that should address some of the concerns. The SDT does not believe a generation source exemption is required.

The SDT reviewed and discussed industry concerns related to water as a fuel source. The definition of Fixed Fuel Supply Component specifically identifies "equipment that supports the reliable delivery of fuel" and not the fuel itself eliminating the water used to fuel hydropower plants.

The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once.

The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	
Document Name	

Comment

OPG supports Hydro-Quebec (HQ) and NPCC Regional Standards Committee's comments.

EOP-012-2 is the latest revision of the Extreme Cold Weather Preparedness and Operations standard, whose previous version was not approved for implementation; FERC directed NERC to revise the existing EOP-012-1. Extreme Cold Weather Preparedness and Operations standard is therefore a new standard.

The proposed EOP-012-2 must be designed from the start to apply throughout North American BES, without the need of an additional reliability standard. EOP-012-2 should not be based on a single geographic or regional model but should consider geographic variations in grid characteristics, terrain, weather, and other such factors.

For example, in the regions where close to the extreme temperatures are reached almost every cold weather season, the existing adequate winterization/training captured in various procedures, operating instructions, and specific station design, already addresses these challenges as proven by the operating history of those entities. This is not the result of a reliability standard; it is a sine qua non condition to be able to operate in such a cold climate, and this ability is being tested almost every year, during the cold season.

There is no reliability gap for such area of the BES where the Extreme Cold Weather temperatures are the norm, where the entities have adequate winterization /training in place, as opposed to the regions where entities have less than adequate winterization measures, or no winterizations measures at all being implemented.

It is in those regions, that the co-occurrence of cold weather events results in equipment and electric system thermal, voltage, and stability limits to be reached, triggering instability, uncontrolled separation, or cascading failures, in such way that appropriate planning could not mitigate.

To recognize and account for the above differences, which cannot be adequately addressed through an all-encompassing standard, the SDT must include an exception for Canadian entities whose generating units are already reliably operating in the extreme cold weather, as proven by the operating history, therefore avoiding the undue compliance burden.

This is considered part the scope of a SDT developing a new standard, and there shall be no implied expectation of a SAR to be initiated to remind us that NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American Bulk Power Systems, which should address the geographic variations in grid characteristics, as relates to weather, in a cost effective manner.

PRC-012-2 Draft 2 requirements are an unjustified burden for those entities already successfully operating reliably in a cold climate, without additional benefit to reliability and unnecessary for those existing entities' support provided for Reliable Operation of the Bulk Power System.

PRC-012-2 Draft 2 fails to adequately meet the reliability principles that define the foundation of reliability for North American Bulk Power Systems like:

- As written this standard is designed for geographical/regional model with entities without adequate winterization measures in place yet is blanketly applied throughout the NERC regions, without considering the weather operating history, and regardless how this affects the need for Reliability Standard Requirements.
- As written this standard is not destined to achieve its reliability goal effectively and efficiently, due to disregard of unnecessary implementation cost for entities already operating reliably in a cold climate
- The ERO would have a hard time explaining the additional compliance burden balancing with respect to vital public interest, given the latest draft standard, where such standard requirements are unwarranted. Cold weather preparedness should not render the energy price prohibitive for the end user.

PRC-012-2 wording should clearly delineate water from fuel category from the perspective of Extreme Cold Weather Preparedness and Operations standard. Fuel can be considered a substance that produces useful amount of energy when it undergoes a chemical or nuclear reaction. This will eliminate any standard scope inclusion of fixed fuel component associated with water for the hydro units.

Creating and maintaining a separate set of documents or all-encompassing document for the sole purpose of compliance with standard EOP-012 should not be the purpose of this standard (i.e., audit easiness) as long as the separate procedure/operating instructions covers adequately the entities' performance in cold weather operating conditions (as proven by the operating history).

We are equally responsible for BES reliability. EOP-012-2 may create inconsistencies or conflicts with other NERC Reliability Standards, such as BAL-002-3 (Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event), which requires Balancing Authorities to maintain contingency reserves to respond to disturbances.

Latest draft EOP_012-2 will impose additional costs and burdens on Generator Owners to develop, implement, and maintain or enhance their extreme cold weather plans, together with their additional costs and burdens associated with the compliance evidence collection/retention; these undue costs and burdens are particularly evident for the entities already operating reliably in cold climate.

EOP-012-2 places the onus entirely on the GO/GOP and may not adequately address the root causes or contributing factors of the February 2021 Event, such as fuel supply issues, natural gas infrastructure limitations, interconnection coordination challenges, or communication and situational awareness gaps.

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather "applicable generating units". In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of "fixed fuel supply component".

Please add an "or" after the first bullet in R1, section 1.2.2.

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

Requirement 1.1.1 states:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]"

It is suggested to add "if required" or similar wording to the requirement:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan, if required, under Requirement R4 […]"

The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden.

R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4: We don’t have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard’s requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.

The SDT reviewed and discussed industry concerns related to water as a fuel source. The definition of Fixed Fuel Supply Component specifically identifies "equipment that supports the reliable delivery of fuel" and not the fuel itself eliminating the water used to fuel hydropower plants.

The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once.

Many regions that have operated in cold climates may be able to meet the requirements of the standard with minimal effort as they have operated successfully for long periods of time. The use of existing operating processes and procedures provide the foundation.

For R5, if existing training for cold weather is sufficient for the requirement, documentation will be needed.

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	
Document Name	

Comment

N/A

Likes 0	
Dislikes 0	

Response

Thank you for your review.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	
Document Name	
Comment	
No additional comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	

Document Name	
Comment	
NRG would like clarification regarding training of maintenance personnel performing inspection activities. Is it the intent of the SDT to ensure that all personnel, including vendors that do preliminary inspections and/or repairs must train to the specific site plan?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed this comment and determined that R5 provides the needed clarity - "maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s)" does not indicate that vendors doing work or repairs on equipment prior to the winter season are responsible for implementing the plan.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	
Document Name	
Comment	
NRG would like clarification regarding training of maintenance personnel performing inspection activities. Is it the intent of the SDT to ensure that all personnel, including vendors that do preliminary inspections and/or repairs must train to the specific site plan?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT discussed this comment and determined that R5 provides the needed clarity - "maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s)" does not indicate that vendors doing work or repairs on equipment prior to the winter season are responsible for implementing the plan.	
Marty Hostler - Northern California Power Agency - 3,4,5,6	

Answer	
Document Name	
Comment	
In FERC and NERC’s 2017 Cold Weather report they suggested a three-prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA’s and RC’s which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT cannot address market related issues or interconnection requirements.	
Michael Whitney - Northern California Power Agency - 3,4,5,6	
Answer	
Document Name	
Comment	
In FERC and NERC’s 2017 Cold Weather report they suggested a three-prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA’s and RC’s which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT cannot address market related issues or interconnection requirements.	

C. A. Campbell - LS Power Development, LLC - 5	
Answer	
Document Name	
Comment	

While it's clear the Standard Drafting Team made every attempt to align the revisions to the FERC Order, there are key areas that need revisiting.

1) We are concerned with R1.2.2. that requires various data sources that may not provide value.

For older plants, design data at the unit level, despite providing little current operational value, will be difficult if the plant is a group of systems with different manufacturers. Further, this data will be challenging if not impossible to obtain if the plant has changed ownership multiple times. In this situation requiring only an engineering analysis to ascertain current operational cold weather capabilities and readiness is reasonable.

For newer plants with limited wear and tear on components, as an alternative to an engineering analysis, it would be practical to only require design data to establish operational thresholds.

2) We do not agree with the revised definition of Generator Cold Weather Critical Component. We were under the impression the effort was to focus the list to include only critical components exposed to cold weather and could result in a defined 'event'. Expanding the definition to include dedicated "heating sources" pulls weatherization measures into the list. Where does it end?

3) We don't agree with the implementation plan and requirements to have CAPs developed by 4/1/2025 with staggered 24 & 48 month completions. As written, the revisions pose an enormous cost and administrative burden.

We can appreciate the challenge of balancing the FERC order against the burdens it will pose to affected Entities. Thank you so much for the opportunity to comment.

Likes 0	
Dislikes 0	
Response	

Thank you for your comments. R1.2.2 has three options, which the SDT believes can address the concerns of both older and newer plants.

The definition of GCWCC provides specific exclusions regarding permanent buildings with a heating source.

Brittany Millard - Lincoln Electric System - 5	
Answer	
Document Name	
Comment	

R1.2.2 is confusing as written, clarification is necessary to indicate if the first bullet is mandatory with a choice between second and third bullet or if it is a choice between the 3 bullet points. The word “or” after the first bullet would clarify if that is the intent.

Under R3, FERC rejected a one-hour timing requirement for the existing generating units to operate at the Extreme Cold Weather Temperature (ECWT). Draft 2 of EOP-012-2 now has no time frame that a Generator in operation prior to 2027 should be able to run. As written, this appears to assume that the unit must be able to run indefinitely at the ECWT or Implement freeze protection measure or a Corrective Action Plan to do so, while newer units (post October 2027) are only required to run for a period of 12 hours under R2 at their ECWT combined with a new criteria of wind speed. LES understands that removing the timing requirement from R3 was a purposeful decision by the SDT however, clarification of how long existing generators must be able to run during their ECWT could prevent confusion over potential non compliances.

Likes 0	
Dislikes 0	

Response

Thank you for the question. The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once.

Regarding R3, after FERC rejected the one-hour timing requirement, and taking into consideration other industry comments expressing concern for creating unreasonable compliance obligations, the SDT chose not to include a set amount of time that a unit must run. The CAP process is meant to address issues that prevent units from running at the ECWT.

Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	
Document Name	
Comment	
RF appreciates the continued efforts of the Standard Drafting Team on this project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	
Document Name	
Comment	
In FERC and NERC’s 2017 Cold Weather report they suggested a three prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA’s and RC’s which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT cannot address market related issues or interconnection requirements.	

Alyssia Rhoads - Public Utility District No. 1 of Snohomish County - 1	
Answer	
Document Name	
Comment	
I would like to see the word "OR" added under 1.2.2 after the first bullet, for clarity.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The use of "OR" after the second bullet is consistent with how standards are generally drafted.	
Richard Vendetti - NextEra Energy - 5	
Answer	
Document Name	
Comment	
Regarding Requirement R4 4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	

Objection: Wind turbine blades in certain geographies can be susceptible to icing even when the turbine is experiencing temperatures warmer than the ECWT. Generator Owner requests consideration and flexibility due to these conditions and potential temporary impacts to production.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT understands the concerns raised and has put in the ability to have a declaration when necessary.

Nicolas Turcotte - Hydro-Quebec (HQ) - 1

Answer	
Document Name	

Comment

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather “applicable generating units”. In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of “fixed fuel supply component”.

Please add an “or” after the first bullet in R1, section 1.2.2.

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

Requirement 1.1.1 states:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 […]"

It is suggested to add "if required" or similar wording to the requirement:

"If the recalculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan, if required, under Requirement R4 […]"

The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden.

R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

R4: We don't have dedicated procedures for cold weather preparedness. It is included in our existing procedures and operating instructions for particularities for each generating plant is in each site-specific operating instruction. We fail to see how we could demonstrate compliance with the requirement the way it is written without creating and maintaining a separate set of documents or umbrella document for the sole purpose of compliance with standard EOP-012. We would like to see the requirement modified to cover the case where an entity has cold weather operating conditions included in existing operating documents without having to create dedicated documents.

R5: Requires annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. We do not have annual training specific to cold weather, as this type of operations is an integral part of our operating instructions. Our operators are trained specifically on the generating units for the specific installation which they are working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice. Assuming that the Applicability section 4.2 of the standard would be

modified with our proposed exclusion of any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C, corresponding changes would need to be made to this requirement to exclude these components from annual training.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Thank you for your comments. FERC had concerns related to exemptions in applicability and the SDT does not believe a geographic or generation source exemption is required. Many regions that have operated in cold climates may be able to meet the requirements of the standard with minimal effort as they have operated successfully for long periods of time. The use of existing operating processes and procedures provide the foundation. The SDT has provided some updated working to R3 that should address some of the concerns. The SDT does not believe a generation source exemption is required. The SDT reviewed and discussed industry concerns related to water as a fuel source. The definition of Fixed Fuel Supply Component specifically identifies "equipment that supports the reliable delivery of fuel" and not the fuel itself eliminating the water used to fuel hydropower plants. The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	

Document Name	
Comment	

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather "applicable generating units".   In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

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working which is documented in the specific operating instruction for that plant. For example, depending on the geographical location of the generating unit in the large area that is Québec, the operating instruction will indicate how to operate the units in the winter, in the summer, or in the springtime flooding with the melting of the snow and ice. Assuming that the Applicability section 4.2 of the standard would be modified with our proposed exclusion of any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C, corresponding changes would need to be made to this requirement to exclude these components from annual training.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. FERC had concerns related to exemptions in applicability and the SDT does not believe a geographic or generation source exemption is required. Many regions that have operated in cold climates may be able to meet the requirements of the standard with minimal effort as they have operated successfully for long periods of time. The use of existing operating processes and procedures provide the foundation. The SDT has provided some updated working to R3 that should address some of the concerns. The SDT does not believe a generation source exemption is required. The SDT reviewed and discussed industry concerns related to water as a fuel source. The definition of Fixed Fuel Supply Component specifically identifies "equipment that supports the reliable delivery of fuel" and not the fuel itself eliminating the water used to fuel hydropower plants. The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.	

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	

It appears that the SDT mentions the Initial Performance of Periodic Requirements in terms of currently registered entities. Assuming the Standard becomes effective October 1, 2024 and an entity is registered October 2, 2027, please clarify when the SDT expects the entity to have performed R1? Prior to commercial operations date or within 5 calendar years of commercial operations date?

The SDT should confer with observing FERC staff to see if Recommendation 1d is covered effectively. Recommendation 1d states “The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and **be completed by no later** than the beginning of the next winter season.” R1 addresses development of a CAP within six (6) months. R2 and R3 have no CAP development time stated. R6 has a development time stated (“..within 150 days or by July 1, whichever is earlier..”). R7’s initiating point is the development of a CAP in R1, R2, R3, or R6 but does not address completion “by no later than the beginning of the next winter season.” The SDT should consider a development time for CAPs developed pursuant to R2 and R3. Furthermore, the SDT should document why the completion timeline is not defined. It is clear that new equipment or freeze protection measure, based on what that might be, could have an extended timeframe, but the language provided allows for ANY new equipment or freeze protection measure to take up to 48 months or longer to be implemented.

The SDT should consider notification of CAPs to those entities relying on generators to be available. An entity could hold a CAP for an extended timeframe, including winter, without any notification as to the readiness for cold weather. An action is not administrative if the action is needed to ensure reliability.

As written, a CAP could have multiple declarations throughout its lifetime depending upon the nature of the CAP. Is it a requirement to make a declaration in conjunction with the CAP (i.e., at the same time) or make the declaration when an action is not going to be implement? In one sense, would a CAP be developed if the constraint could not be mitigated and simply a declaration be made to that effect?

Based on the possibility of a single CAP addressing multiple units, a single unit could be addressed in a declaration. When that occurs, is the expectation of the SDT to require an entity to create a new CAP for the single unit, or modify the CAP to reflect the unit will not meet the CAP but the others will?

For consistency- Adjust R1 Part 1.1.1 last sentence to state "….within six (6) months…" What is the timetable for updating the cold weather preparedness plan after development of a CAP? Is there an expectation that an update is required if a CAP is developed?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has modified R7 to include a 24-month completion requirement. Additionally, GO's must document in a declaration any identified GCWC's. After much discussion with NERC, it has been determined that GCWC's will most likely be handled through Section 1600 data requests. The CAP requires a timetable, and the cold weather preparedness plan should be updated per the timetable included in the relevant CAP.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	
Document Name	
Comment	
The subrequirements of R7.1 should clarify that the actions identified in the CAP are what need to be completed in the time intervals. Not just listing the action items.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has modified R7 to include a 24-month completion requirement.	
Kimberly Turco - Constellation - 6	
Answer	
Document Name	

Comment	
Constellation has no additional comments. Kimberly Turco on behalf of constellation segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Alison MacKellar - Constellation - 5	
Answer	
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	

Document Name

Comment

NA

Likes 0

Dislikes 0

Response

Thank you for your review.

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson

Answer

Document Name

Comment

PG&E recommends the SDT add the R2 Footnote 2 and R3 Footnote 3 (exemption language for ECWT above 32) to be applicable to R5. If the generator ECWT is greater than 32 and therefore R2 and R3 are not applicable, what would be the objective of having training when there is no capability of freezing? PG&E believes it is imperative to ensure training applies to plant personnel to ensure the focus of personnel and resources is on the highest priorities tasks, and if the ECWT is above 32, there would be no reason for training.

Likes 0

Dislikes 0

Response

Thank you for your comments. The SDT chose not to modify previously approved language. The FERC order directed every GO to have a cold weather preparedness plan and training regardless of ECWT. If the ECWT is above the 32 there is a small possibility that the generator could experience temperatures below 32 in the future.

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion

Answer	
Document Name	

Comment

Requirement 1.2.1 currently requires Generator Owners to identify generating unit operating limitations in cold weather. Dominion Energy is concerned that this could be interpreted to include cold start up timeframes, which are not necessarily operating limitations. Dominion Energy is of the opinion that cold starts during extreme cold weather should not be included as an operating criteria or requirement in the Standard and should be specifically excluded.

Requirement 6 addresses the development of Corrective Action Plans for units that have an Event during extreme cold weather. The proposed version requires the development to occur at the earlier of either 150 days or July 1 after the Event. Dominion Energy is of the opinion that the July 1 date is arbitrary and does not add any reliability benefit, but rather unnecessarily reduces the timeframe to develop for late season extreme cold weather events. Dominion Energy recommends that the July 1 date be removed from the Requirement and that all Corrective Action Plans be given a 150-day timeframe for development.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT chose not to revise the CAP development timeframe. There is no expectation to complete a CAP by July 1, but to have an understanding of the corrective actions needed prior to the start of the next winter.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	
Document Name	

Comment

Thank you for the opportunity to Comment.

Likes 0	

Dislikes 0	

Response

Thank you for your review.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	
Document Name	

Comment

For Requirement R1 Part 1.1.1, it doesn't seem logical to only reference generating units that are subject to Requirement R3. As time progresses, the ECWT re-calculations could identify generating units that are subject to Requirement R2 that need corrective actions as well. We suggest the following wording for the last sentence in R1 Part 1.1.1:

"If new corrective actions are needed to provide the required operational capability under Requirement ***R2 or*** *R3, the entity shall develop a Corrective Action Plan* ***in accordance with Requirement R7*** *within 6 months of the recalculation."*

For Requirement R1 Part 1.2.2, we recommend an "or" be added after the first design temperature bullet if the intent is to allow the GO to utilize either of the three bulleted approaches to identify their generating unit(s) minimum.

We reiterate our comment submitted on Draft 1 that some existing contracts for new units are being delayed past 10/1/27 due to manpower and equipment supply chain issues. These contracts do not necessarily include all the cold weather requirements from this standard. Changing the contracts would at the minimum be expensive and, at the worst, may not be possible. Therefore we suggest the Requirement R2 commercial operation date stipulation be revised to "on or after October 1, 2030". This would also result in the Requirement R3 commercial operation date stipulation being changed to "prior to October 1, 2030".

Likes 0	
Dislikes 0	

Response

Thank you for your comments.

R1 Comment - the CAP process is included R2. The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once. R2 Comment - The SDT fully understood the concern regarding plants in construction, as such, the standard language provides for the option to implement a Corrective Action Plan with up to a 48-month timeframe to get the appropriate freeze protection measures implemented.	
Keith Jonassen - Keith Jonassen On Behalf of: John Pearson, ISO New England, Inc., 2; - Keith Jonassen	
Answer	
Document Name	
Comment	
ISO-NE believes that the requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units. Other Requirements with the CAP allow for the 48 months for upgrades, which would allow for the implementation for new commercial units as well as existing units. Keeping the requirements separate guarantees in 2027 a Standard update will need to occur to remove an outdated requirement. ISO-NE recommends simplifying the process with R2 and R3 to eliminate future administrative work. These requirements would not fit into the Standards Efficiency Review goals and therefore should be combined. As stated in previous comments the ECWT is calculated higher than actually experienced temperatures. In some areas the ECWT is 20 degrees or greater higher than actually experienced. PJM provided the data for their region during the FERC filing/commenting period after Phase 1 demonstrating the temperature difference between ECWT and Actual. In addition to the PJM data ISO-NE has identified multiple areas within New England where ECWT is >20 degrees than actual low temperatures (since 2000). As a good practice, generators have been able to demonstrate operability at the lower temperatures in New England which experiences Cold Weather temperatures with some regularity. As written due to the higher ECWT values than experienced temperatures and the subsequent demonstration of capability during those low temperatures, ISO-NE does not expect many generator freeze protection upgrades to be needed in its area.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT reviewed and decided not to make this change.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE noticed EOP-012-2 Requirement R1 does not state that the Generator Owner needs to document the calculation and other details included in the requirement. While the measure section states that the GO shall retain data or evidence to support the ECWT, Texas RE is concerned that not including language to document the activities Requirement R1, could result in inconsistent interpretation of the need for maintaining proper evidence. In addition, Texas RE suggests revising Requirement R1 for GO to perform the ECWT calculations on **annual** basis instead of every five calendar years, in order to ensure that the most recent and current information is used to prepare unit’s cold weather preparedness plan. Performing the calculations every five calendar years could create a long lag time for identifying any incremental reliability improvements if a cold weather event happened immediately after a GO performed its ECWT calculation. Performing the ECWT calculations annually could also help to include any lessons learned from the latest weather event and updating any operating limitations in the annual Generator Cold Weather Constraint declaration under Requirement R8.	

Texas RE recommends that Requirement R1 should provide specificity to which data source should be used for calculating ECWT to support standardization and to help with verifying the data during an audit.

Texas RE seeks clarification on whether the reference to Requirement R2 in (1.1.1) was removed intentionally. Texas RE believes that the reference to Requirement R2 shall remain in R1 (1.1.1.). Texas RE recommends the following verbiage:

R1: At least once every five calendar years, Each Generator Owner shall at least annually document, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]

Texas RE noticed that in the Requirement R1, 1.1 'applicable **generating** unit(s)' is changed to 'applicable unit(s). For consistency, Texas RE suggests retaining the reference 'applicable **generating** unit(s)' in Requirement R1, 1.1. Texas RE recommends the following verbiage:

1.1 Calculate the Extreme Cold Weather Temperature for each of its applicable generating unit(s) **using a reliable source of data from a recording location near the plant and** identify the calculation date and source of temperature data; and

Texas RE requests Requirement R5 be clarified to include training for all personnel including contractors that are responsible for implementation and maintenance of the freeze protection measures required to keep the generating unit reliable during extreme cold weather conditions. Texas RE proposes the following verbiage (changes in bold):

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity, **whether its GO or GOP or both**, responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel **including third-party contractors** responsible for implementing the cold weather preparedness plan(s) **and maintaining the freeze protection measures** developed pursuant to Requirement R4.

Likes 0	
Dislikes 0	

Response

Thank you for your comments.

R1 - the ECWT must be documented in the cold weather preparation plan required in R4.

The SDT chose a five-year re-calculation date as we feel an annual calculation will not have a significant deviation from the previous year. This creates an additional annual burden without significant impact. Entities are free to calculate ECWT more frequently if they desire.

The SDT believes the R5 language, as written, covers the scenarios suggested in this comment. Please see the technical rationale for additional information.

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	
Document Name	

Comment

We appreciate that the SDT has modified the term Generator Cold Weather Critical Component to exclude any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C. However, it is still not clear these components are not subject to R2 and R3. R3 does not mention generating units with Generator Cold Weather Critical Components but rather “applicable generating units”.   In order to make it clear that these components are not subject to the rest of requirements we suggest modifying the Applicability section 4.2 of the standard with the exclusion any component located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C or add language to R2 and R3 to specify that generating units located inside a permanent building with a heating source that maintains the space at a temperature above 32 degrees F / 0 degrees C are exempt from the requirement.

Furthermore, we suggest that water, for hydropower plants, should be explicitly excluded from the definition of “fixed fuel supply component”.

Please add an “or” after the first bullet in R1, section 1.2.2.

We continue to reiterate that Canadian entities do not face the same reliability issue regarding extreme cold weather that were faced in the Mid and Southern USA and provide the following examples as undue administrative burden for hydro power plants in our geographical area:

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It is suggested to add “if required” or similar wording to the requirement:

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The technical rationale being that for a utility routinely operating in the cold, a variation in the ECWT from, as an example, –15 °F to -20 °F will most likely have no impact on the operation in cold weather of the preparation of the hydro generating units to cold weather. However, requirement 1.1.1 would still require an update to the cold weather preparedness plan as it is currently worded. We therefore we question the added value of this calculation in our geographical area. This requirement places an undue administrative burden.

R2 and R3: NERC proposes the threshold of 0°C to determine which groups will or will not be subject to EOP-012. However, in the case of hydro power plants in our geographical area, it is more the configuration of the power plant (run-of-river vs. reservoir, for example) that dictates the protective measures to be taken than the outside temperatures. Some production groups may not have cold protection measures depending on their configuration (for example an underground power plant with a water intake at the bottom of a reservoir). We urge the standard drafting team to take this into consideration.

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EOP-012-2 is the latest revision of the Extreme Cold Weather Preparedness and Operations standard, whose previous version was not approved for implementation; FERC directed NERC to revise the existing EOP-012-1. Extreme Cold Weather Preparedness and Operations standard is therefore a new standard.

The proposed EOP-012-2 must be designed from the start to apply throughout North American BES, without the need of an additional reliability standard. EOP-012-2 should not be based on a single geographic or regional model but should consider geographic variations in grid characteristics, terrain, weather, and other such factors.

For example, in the regions where close to the extreme temperatures are reached almost every cold weather season, the existing adequate winterization/training captured in various procedures, operating instructions, and specific station design, already addresses these challenges as proven by the operating history of those entities. This is not the result of a reliability standard; it is a sine qua non condition to be able to operate in such a cold climate, and this ability is being tested almost every year, during the cold season.

There is no reliability gap for such area of the BES where the Extreme Cold Weather temperatures are the norm, where the entities have adequate winterization /training in place, as opposed to the regions where entities have less than adequate winterization measures, or no winterizations measures at all being implemented.

It is in those regions, that the co-occurrence of cold weather events results in equipment and electric system thermal, voltage, and stability limits to be reached, triggering instability, uncontrolled separation, or cascading failures, in such way that appropriate planning could not mitigate.

To recognize and account for the above differences, which cannot be adequately addressed through an all-encompassing standard, the SDT must include an exception for Canadian entities whose generating units are already reliably operating in the extreme cold weather, as proven by the operating history, therefore avoiding the undue compliance burden.

This is considered part the scope of a SDT developing a new standard, and there shall be no implied expectation of a SAR to be initiated to remind us that NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American Bulk Power Systems, which should address the geographic variations in grid characteristics, as relates to weather, in a cost effective manner.

PRC-012-2 Draft 2 requirements are an unjustified burden for those entities already successfully operating reliably in a cold climate, without additional benefit to reliability and unnecessary for those existing entities' support provided for Reliable Operation of the Bulk Power System.

PRC-012-2 Draft 2 fails to adequately meet the reliability principles that define the foundation of reliability for North American Bulk Power Systems like:

{C}Ø As written this standard is designed for geographical/regional model with entities without adequate winterization measures in place yet is blanketly applied throughout the NERC regions, without considering the weather operating history, and regardless how this affects the need for Reliability Standard Requirements.

{C}Ø As written this standard is not destined to achieve its reliability goal effectively and efficiently, due to disregard of unnecessary implementation cost for entities already operating reliably in a cold climate

{C}Ø The ERO would have a hard time explaining the additional compliance burden balancing with respect to vital public interest, given the latest draft standard, where such standard requirements are unwarranted. Cold weather preparedness should not render the energy price prohibitive for the end user.

PRC-012-2 wording should clearly delineate water from fuel category from the perspective of Extreme Cold Weather Preparedness and Operations standard. Fuel can be considered a substance that produces useful amount of energy when it undergoes a chemical or nuclear reaction. This will eliminate any standard scope inclusion of fixed fuel component associated with water for the hydro units.

Creating and maintaining a separate set of documents or all-encompassing document for the sole purpose of compliance with standard EOP-012 should not be the purpose of this standard (i.e., audit easiness) as long as the separate procedure/operating instructions covers adequately the entities’ performance in cold weather operating conditions (as proven by the operating history).

We are equally responsible for BES reliability. EOP-012-2 may create inconsistencies or conflicts with other NERC Reliability Standards, such as BAL-002-3 (Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event), which requires Balancing Authorities to maintain contingency reserves to respond to disturbances.

Latest draft EOP_012-2 will impose additional costs and burdens on Generator Owners to develop, implement, and maintain or enhance their extreme cold weather plans, together with their additional costs and burdens associated with the compliance evidence collection/retention; these undue costs and burdens are particularly evident for the entities already operating reliably in cold climate.

EOP-012-2 places the onus entirely on the GO/GOP and may not adequately address the root causes or contributing factors of the February 2021 Event, such as fuel supply issues, natural gas infrastructure limitations, interconnection coordination challenges, or communication and situational awareness gaps.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The intent of the SDT's approach within the Technical Rationale was to recognize that equipment within buildings are, by virtue of the building, protected. The SDT therefore believes the definition of GCWCC sufficiently addresses components inside permanent building with a heating source. The SDT has provided some updated working to R3 that should address some of the concerns. The SDT does not believe a geographic or generation source exemption is required.

The SDT reviewed and discussed industry concerns related to water as a fuel source. The definition of Fixed Fuel Supply Component specifically identifies "equipment that supports the reliable delivery of fuel" and not the fuel itself eliminating the water used to fuel hydropower plants.

The use of "Or" after the second bullet is consistent with drafting of standards, to reflect that entities may choose from multiple options. The "Or" is only used once.

The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard’s requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.

The SDT does not believe a geographic or generation source exemption is required. Many regions that have operated in cold climates may be able to meet the requirements of the standard with minimal effort as they have operated successfully for long periods of time. The use of existing operating processes and procedures provide the foundation.

Teresa Krabe - Lower Colorado River Authority - 5	
Answer	
Document Name	
Comment	

None at this time.	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	
Document Name	
Comment	
Southern wished to thank the SDT for their efforts to provide adequate requirements that provide meaningful requirements that are balanced and reasonable.	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	
The NAGF has no additional comments.	

Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	
Document Name	
Comment	
Thank you for the opportunity to comment.	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	
Document Name	
Comment	
AES Clean Energy strongly recommends that either NERC, the Standard Drafting Team or a group of industry experts representing various generator types develop implementation guidance or CMEP Practice Guide for EOP-012-2. This will help alleviate issues regarding interpretation of the requirement language as it pertains to each type of generator.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT will pass on this recommendation.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Thank you for your review.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	
Document Name	
Comment	
The SRC appreciates the drafting team’s work in revising EOP-012 to address the directives from FERC, but as further detailed below, the SRC believes that additional revisions are needed to fully address FERC’s directives. **Clarify Ambiguity in Requirement R1**	

The SRC notes that the reference to Requirement R2 has been removed from R1.1.1. The SRC believe that it is important for R1.1.1 to address both Requirement R2 and Requirement R3; the SRC therefore recommends that the reference to Requirement R2 be reinserted in R1.1.1.

Remove ambiguity from Applicability provisions - FERC has directed that the standard should apply to all BES generation resources needed for reliable operation and exclude only those generation resources not relied upon during freezing conditions. The SRC agrees with the proposed revisions to the Applicability section of the Standard and requests that Requirements R2, R3, and R6 be revised to replace "self-commits or that is required to operate" with "that may be committed to operate" and that footnotes 2, 3, and 5 be removed or revised. The SRC believes these modifications are required to meet the FERC directive regarding the universe of units to which EOP-012 should apply. Without these revisions, Requirements R2, R3, and R6 and footnotes 2, 3, and 5 appear to allows unit(s) needed for reliable operation to be exempt from meeting the Requirements to implement freeze protection measures and develop a CAP as needed. The SRC believes that removing footnotes 2, 3, and 5 is the best way to meet the FERC directive, but proposes that the language contained in footnotes 2, 3, and 5 be reworded to read as follows in the event the drafting team elects to keep these footnotes in EOP-012:

Generating unit(s) that were intentionally designed for limited operation in the summer season, but may operate on a "best efforts" basis during the winter season when needed in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Add timing specificity for required inspections & maintenance - The SRC recommends that Requirement R4, Part 4.5 be revised to require inspections and maintenance of all units on "at least an annual basis, and always within three months of the upcoming winter season." This request is due to past and current findings in which the GO/GOP did not initiate inspection and maintenance early enough or prior to winter and was consequently not prepared for cold weather operations in a timely manner.

Ensure sufficient data provision to BAs - Phase II of the Cold Weather Recommendations in FERC's report on Winter Storm Uri indicated in its discussion of TOP-003-5 in Key Recommendation 1g that the Reliability Standards should be revised to provide greater specificity about the relative roles of the Generator Owners, Generator Operators, and Balancing Authorities in determining the generating unit capacity that can be relied upon during "local forecasted cold weather." Key Recommendation 1g further indicated that "Based on its understanding of the 'full reliability risks related to the contracts and other arrangements [Generator Owners/Generator Operators] have made to obtain natural gas commodity and transportation for generating units,' each Generator Owner/Generator Operator should be required to provide the Balancing Authority with data on the percentage of the generating unit's capacity that the Generator Owner/Generator Operator reasonably believes the Balancing Authority can rely upon during the 'local forecasted cold weather.'" Given the importance of this information, the SRC requests that EOP-012-2 include a Requirement that clearly requires the GO/GOP to provide Real-time derate/outage data to its BA in order for the BA to have accurate and timely knowledge of operating reserves and situational awareness of unplanned unit constraints as a result of the extreme cold weather. While this information is currently included in BA data specifications, adding a dedicated Requirement addressing this topic is appropriate given the importance of outage reporting to the BA during extreme cold weather conditions and the importance of Key Recommendation 1g of the *Report.*

Combine Requirements R2 and R3 - The SRC also disagrees that the enhanced cold weather requirements that are contained within Requirement R2 should be limited to units that enter commercial operation after October 1, 2027. Requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units and only allows CAPs for units that achieved commercial operations before October 1, 2027. The Generator Cold Weather Constraint declaration process and the Corrective Action Plan process within EOP-012 provide sufficient accommodation for existing units. Adopting the SRC's proposal would require more thorough weatherization of generation units, resulting in a more reliable and performant BES during extreme cold weather conditions.

Revisit disposition of prior SRC comments - Finally, the SRC disagrees with the SDT's disposition of our comments submitted in response to **Phase 2 - Draft 1 of EOP-012-2**. We ask the SDT to reconsider our recommendations. Consideration of Comments.

Likes 0	

Dislikes 0	
Response	
The SDT appreciates SRCs comments and has reviewed the suggested revisions. The inclusion of "self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit" and the footnote language was found to be acceptable by the majority of industry. The SDT discussed and concluded that the information required by the BA, RC, and TOP, including information related to constraint declarations, generator availability and operating limitations is available pursuant to TOP-003 and IRO-010. Specific informational needs required by any BA or RC are already authorized to be requested under TOP-003 and IRO-010. The SDT thinks it is appropriate to have two requirements addressing existing units vs new units separately. The SDT is having to balance with industry comments from northern units that have largely not experienced significant issues during extreme cold weather and as such would view the SRC proposed requirements as overly prescriptive. The SDT believes that even though the SRC comments have not been implemented does not mean the team has not considered the comments. The drafting team is balancing multiple industry comments from different segments, therefore, the SDT does not have any changes to our previous response to the SRC in Draft 1.	
Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro	
Answer	
Document Name	
Comment	
1. The addition of “impacts of freezing precipitation” in the Generator Cold Weather Reliability Event may result in additional constraints to the CAP implementation timelines for northern utilities. Although BC’s coldest weather months are December – February, the inclusion of freezing precipitation impacts may result in EOP-012 events well into the Spring calendar months (March, April, or even May in extreme conditions) in British Columbia, which – given the July 1 deadline – will add considerable burden in timely completion of the CAP in the context of Requirement R6.	

BC Hydro recommends that the wording of the Requirement R6 be changed to allow up to 150 calendar days in cases where the July 1 is not be feasible for events later in the year.

2. The wording “for each of its applicable unit(s)” in Requirement R1 Part 1.1 appears redundant as the applicability to “each of its applicable generating unit(s)" is already specified in the main part of R1. Recommend removing it from Part 1.1.

3. Requirements R2 and R3 include three different descriptors applied to “freeze protection measures”:

- “freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability”;
- “freeze protection measures to provide the capability”; and
- “freeze protection measures that provide the capability”

Without a definition for “freeze protection measure” or a consistent language, the intention of the freeze protection measure may be interpreted differently.

BC Hydro recommends revising the wording for consistency or provide a stand alone definition of the “freeze protection measure”.

4. Per Requirement R3, for generating units in commercial operation prior to October 1, 2027 there will not be an expectation to have the capability to operate at ECWT for 12 continuous hours or max operational duration for intermittent energy resources. This appears to be supported by the requirement R3 section of the Technical Rationale: “to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3 as to not create an unreasonable compliance obligation.” Please confirm if this understanding is accurate.

Likes 0	
Dislikes 0	

Response

Thank you for your comment.
1. The standard does account for the impacts of freezing precipitation to meet the objectives of Key Recommendations. The SDT chose not to revise the CAP development timeframe. There is no expectation to complete a CAP by July 1, but to have an understanding of the corrective actions needed prior to the start of the next winter.
2. The team does not believe the wording is contradictory and will not change at this time.
3. The team has made the descriptors in R2 and R3 consistent.

4. Regarding R3, after FERC rejected the one-hour timing requirement, and taking into consideration other industry comments expressing concern for creating unreasonable compliance obligations, the SDT chose not to include a set amount of time that a unit must run. The CAP process is meant to address issues that prevent units from running at the ECWT.

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RELIABILITY CORPORATION

Reminder
Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Additional Ballots and Non-binding Poll Open through November 30, 2023

Now Available

Additional ballots and non-binding poll of the associated Violation Risk Factors and Violation Severity Levels for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Phase II** are open through **8 p.m. Eastern, Thursday, November 30, 2023** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

The standard drafting team's considerations of the responses received from the last comment period are reflected in this draft of the standard.

Reminder Regarding Corporate RBB Memberships

Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact ballotadmin@nerc.net to assist with the removal of any duplicate registrations.

Balloting

Members of the ballot pools associated with this project can log in and submit their votes by accessing the Standards Balloting and Commenting System (SBS) here.

Note: Votes cast in previous ballots, will not carry over to additional ballots. It is the responsibility of the registered voter in the ballot pools to place votes again. To ensure a quorum is reached, if you do not want to vote affirmative or negative, cast an abstention.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*

- *Please be mindful of ballot and comment period closing dates. We ask to* ***allow at least 48 hours*** *for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts* ***prior to the last day*** *of a comment/ballot period.*

Next Steps

The ballot results will be announced and posted on the project page. The drafting team will review all responses received during the comment period and determine the next steps of the project.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination observer list” in the Description Box.

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

UPDATED Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Formal Comment Period Open through November 30, 2023

Now Available

A 35-day formal comment period for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2,** is open through **8 p.m. Eastern, Thursday, November 30, 2023** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations*updated
  *Requirement R3 was updated to correct error in date to align with previous posting of EOP-012-2
- Implementation Plan

The standard drafting team's considerations of the responses received from the previous comment period are reflected in this draft of the standard.

Reminder Regarding Corporate RBB Memberships
Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact ballotadmin@nerc.net to assist with the removal of any duplicate registrations.

Commenting

Use the Standards Balloting and Commenting System (SBS) to submit comments. An unofficial Word version of the comment form is posted on the project page.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*

- *Please be mindful of ballot and comment period closing dates. We ask to* ***allow at least 48 hours*** *for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts* ***prior to the last day*** *of a comment/ballot period.*

Next Steps

Additional ballots for the standard and implementation plan, and non-binding poll of the associated Violation Risk Factors and Violation Severity Levels, will be conducted **November 21 – 30, 2023**.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination observer list” in the Description Box.

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BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/309)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 AB 2 ST
Voting Start Date: 11/21/2023 12:01:00 AM
Voting End Date: 11/30/2023 8:00:00 PM
Ballot Type: ST
Ballot Activity: AB
Ballot Series: 2
Total # Votes: 267
Total Ballot Pool: 299
Quorum: 89.3
Quorum Established Date: 11/30/2023 12:51:29 PM
Weighted Segment Value: 58.86

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	78	1	29	0.483	31	0.517	0	8	10
Segment: 2	7	0.7	3	0.3	4	0.4	0	0	0
Segment: 3	67	1	30	0.556	24	0.444	0	5	8
Segment: 4	17	1	10	0.667	5	0.333	0	1	1
Segment: 5	73	1	28	0.452	34	0.548	0	3	8
Segment: 6	48	1	25	0.61	16	0.39	0	2	5
Segment: 7	1	0.1	1	0.1	0	0	0	0	0
Segment: 8	1	0	0	0	0	0	0	1	0
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.6	6	0.6	0	0	0	1	0
Totals:	299	6.4	132	3.767	114	2.633	0	21	32

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Negative	Comments Submitted
1	Ameren - Ameren Services	Tamara Evey		Affirmative	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Negative	Comments Submitted
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		Negative	Comments Submitted
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A
1	Basin Electric Power Cooperative	David Rudolph		None	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu		Negative	Comments Submitted
1	Berkshire Hathaway Energy - MidAmerican Energy Co.	Terry Harbour		Negative	Comments Submitted
1	Black Hills Corporation	Micah Runner		Negative	Comments Submitted
1	Bonneville Power Administration	Kamala Rogers-Holliday		Abstain	N/A
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Abstain	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Negative	Third-Party Comments
1	Colorado Springs Utilities	Corey Walker		None	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		None	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		Negative	Comments Submitted
1	Duke Energy	Katherine Street		Negative	Third-Party Comments
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Negative	Third-Party Comments
1	Glencoe Light and Power Commission	Terry Volkmann		Negative	Third-Party Comments
1	Great River Energy	Gordon Pietsch		Negative	Third-Party Comments
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Negative	Third-Party Comments
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Negative	Comments Submitted
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		Negative	Comments Submitted
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Negative	Third-Party Comments
1	Muscatine Power and Water	Andrew Kurriger		Negative	Third-Party Comments
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Negative	Comments Submitted
1	Nebraska Public Power District	Jamison Cawley		Negative	Third-Party Comments
1	New York Power Authority	Daniel Valle		Negative	Third-Party Comments
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Negative	Comments Submitted
1	NiSource - Northern Indiana Public Service Co.	Steve Toosevich		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Negative	Third-Party Comments
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Negative	Third-Party Comments
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		None	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Negative	Comments Submitted
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		None	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A
1	Santee Cooper	Chris Wagner		Affirmative	N/A
1	SaskPower	Wayne Guttormson		Abstain	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		None	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Negative	Comments Submitted
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Negative	Comments Submitted
1	Tennessee Valley Authority	David Plumb		Negative	Third-Party Comments
1	Tri-State G and T Association, Inc.	Donna Wood		Negative	Comments Submitted
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	California ISO	Darcy O'Connell		Affirmative	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	Comments Submitted
2	Independent Electricity System Operator	Helen Lainis		Affirmative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Affirmative	N/A
2	Midcontinent ISO, Inc.	Bobbi Welch		Negative	Third-Party Comments
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Negative	Third-Party Comments
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Negative	Comments Submitted
3	AEP	Kent Feliks		None	N/A
3	Ameren - Ameren Services	David Jendras Sr		Affirmative	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Negative	Comments Submitted
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Negative	Comments Submitted
3	Black Hills Corporation	Josh Combs		Negative	Comments Submitted
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Third-Party Comments
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		Negative	Comments Submitted
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Negative	Third-Party Comments
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		Abstain	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	Glen Allegranza		None	N/A
3	JEA	Marilyn Williams		Negative	Third-Party Comments
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		Negative	Third-Party Comments
3	Lincoln Electric System	Sam Christensen		Negative	Comments Submitted
3	Los Angeles Department of Water and Power	Tony Skourtas		Abstain	N/A
3	M and A Electric Power Cooperative	Stephen Pogue		Affirmative	N/A
3	Manitoba Hydro	Mike Smith		Negative	Comments Submitted
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Negative	Third-Party Comments
3	Muscatine Power and Water	Seth Shoemaker		Negative	Third-Party Comments
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Negative	Third-Party Comments
3	New York Power Authority	David Rivera		Negative	Third-Party Comments

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Negative	Comments Submitted
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Negative	Third-Party Comments
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Negative	Third-Party Comments
3	Orlando Utilities Commission	Ballard Mutters		None	N/A
3	OTP - Otter Tail Power Company	Wendi Olson		None	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Negative	Comments Submitted
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A
3	Santee Cooper	Vicky Budreau		Affirmative	N/A
3	Seminole Electric Cooperative, Inc.	Marc Sedor		None	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		None	N/A
3	Snohomish County PUD No. 1	Holly Chaney		Affirmative	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Negative	Comments Submitted
3	Tennessee Valley Authority	Ian Grant		Negative	Third-Party Comments
3	Tri-State G and T Association, Inc.	Ryan Walter		Negative	Comments Submitted
3	Wabash Valley Power Association	Scott Berry		Negative	Third-Party Comments
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Affirmative	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		None	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Third-Party Comments
4	CMS Energy - Consumers Energy Company	Aric Root		Affirmative	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Katrina Lyons		Negative	Third-Party Comments
4	MGE Energy - Madison Gas and Electric Co.	Adam Lee		Negative	Third-Party Comments
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Negative	Third-Party Comments
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Negative	Comments Submitted
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Affirmative	N/A
5	AES - AES Corporation	Ruchi Shah		Negative	Comments Submitted
5	Ameren - Ameren Missouri	Sam Dwyer		Affirmative	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Negative	Comments Submitted
5	Basin Electric Power Cooperative	Amanda Wangler		Negative	Third-Party Comments
5	BC Hydro and Power Authority	Helen Hamilton Harding		Negative	Comments Submitted
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Negative	Comments Submitted
5	Black Hills Corporation	Sheila Suurmeier		Negative	Comments Submitted
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Third-Party Comments
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Negative	Third-Party Comments
5	Dairyland Power Cooperative	Tommy Drea		Abstain	N/A
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		Negative	Comments Submitted
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		None	N/A
5	Duke Energy	Dale Goodwine		Negative	Third-Party Comments
5	Entergy - Entergy Services, Inc.	Gail Golden		Affirmative	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		Negative	Third-Party Comments
5	Greybeard Compliance Services, LLC	Mike Gabriel		Negative	Third-Party Comments
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Negative	Third-Party Comments
5	Lakeland Electric	Carmen Rodriguez		Negative	Third-Party Comments
5	Lincoln Electric System	Brittany Millard		Negative	Comments Submitted
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Negative	Comments Submitted
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Negative	Comments Submitted
5	Nebraska Public Power District	Ronald Bender		Negative	Third-Party Comments
5	New York Power Authority	Zahid Qayyum		Negative	Third-Party Comments
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Negative	Third-Party Comments
5	NRG - NRG Energy, Inc.	Patricia Lynch		Negative	Comments Submitted
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Oglethorpe Power Corporation	Donna Johnson		Negative	Third-Party Comments
5	Omaha Public Power District	Kayleigh Wilkerson		Negative	Third-Party Comments
5	Ontario Power Generation Inc.	Constantin Chitescu		Negative	Comments Submitted
5	Orlando Utilities Commission	Dania Colon		None	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Negative	Third-Party Comments
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Negative	Third-Party Comments
5	Platte River Power Authority	Jon Osell		None	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Affirmative	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Affirmative	N/A
5	Seminole Electric Cooperative, Inc.	Melanie Wong		None	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Negative	Comments Submitted
5	Talen Generation, LLC	Donald Lock		Negative	Comments Submitted
5	Tennessee Valley Authority	Darren Boehm		Negative	Comments Submitted
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Negative	Comments Submitted
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	Vistra Energy	Daniel Roethemeyer		Negative	Third-Party Comments
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Mathew Miller		Affirmative	N/A
6	Ameren - Ameren Services	Robert Quinlivan		Affirmative	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		None	N/A
6	Black Hills Corporation	Claudine Bates		Negative	Comments Submitted
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		Negative	Third-Party Comments
6	Con Ed - Consolidated Edison Co. of New York	Michael Foley		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		Negative	Comments Submitted
6	Duke Energy	John Sturgeon		Negative	Comments Submitted
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	Third-Party Comments
6	Lincoln Electric System	Eric Ruskamp		Negative	Comments Submitted
6	Manitoba Hydro	Kelly Bertholet		Negative	Comments Submitted
6	Muscatine Power and Water	Nicholas Burns		Negative	Third-Party Comments
6	New York Power Authority	Shelly Dineen		Negative	Third-Party Comments
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Negative	Comments Submitted
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	Comments Submitted
6	NRG - NRG Energy, Inc.	Martin Sidor		Negative	Comments Submitted
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Negative	Third-Party Comments
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Negative	Third-Party Comments

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Affirmative	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Affirmative	N/A
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		None	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Negative	Comments Submitted
6	Tennessee Valley Authority	Armando Rodriguez		None	N/A
6	WEC Energy Group, Inc.	David Boeshaar		Affirmative	N/A
6	Western Area Power Administration	Jennifer Neville		Negative	Comments Submitted
6	Xcel Energy, Inc.	Steve Szablya		Affirmative	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		Affirmative	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Affirmative	N/A

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Showing 1 to 299 of 299 entries

BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/309)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 AB 2 OT
Voting Start Date: 11/21/2023 12:01:00 AM
Voting End Date: 11/30/2023 8:00:00 PM
Ballot Type: OT
Ballot Activity: AB
Ballot Series: 2
Total # Votes: 264
Total Ballot Pool: 295
Quorum: 89.49
Quorum Established Date: 11/30/2023 12:44:46 PM
Weighted Segment Value: 68.44

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	76	1	34	0.596	23	0.404	0	9	10
Segment: 2	6	0.6	5	0.5	1	0.1	0	0	0
Segment: 3	66	1	34	0.642	19	0.358	0	6	7
Segment: 4	16	1	10	0.714	4	0.286	0	1	1
Segment: 5	74	1	32	0.525	29	0.475	0	5	8
Segment: 6	48	1	26	0.667	13	0.333	0	4	5
Segment: 7	1	0.1	1	0.1	0	0	0	0	0
Segment: 8	1	0	0	0	0	0	0	1	0
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.5	5	0.5	0	0	0	2	0
Totals:	295	6.2	147	4.244	89	1.956	0	28	31

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Negative	Comments Submitted
1	Ameren - Ameren Services	Tamara Evey		Abstain	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Negative	Comments Submitted
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		Negative	Comments Submitted
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A
1	Basin Electric Power Cooperative	David Rudolph		None	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu		Abstain	N/A
1	Black Hills Corporation	Micah Runner		Negative	Comments Submitted
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Abstain	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Negative	Third-Party Comments
1	Colorado Springs Utilities	Corey Walker		None	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		None	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		Affirmative	N/A
1	Duke Energy	Katherine Street		Affirmative	N/A
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Negative	Third-Party Comments
1	Glencoe Light and Power Commission	Terry Volkmann		Affirmative	N/A
1	Great River Energy	Gordon Pietsch		Negative	Third-Party Comments
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Negative	Third-Party Comments
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Negative	Comments Submitted
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		Negative	Comments Submitted
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Affirmative	N/A
1	Muscatine Power and Water	Andrew Kurriger		Negative	Third-Party Comments
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Negative	Comments Submitted
1	Nebraska Public Power District	Jamison Cawley		Negative	Third-Party Comments
1	New York Power Authority	Daniel Valle		Negative	Third-Party Comments
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Negative	Comments Submitted
1	NiSource - Northern Indiana Public Service Co.	Steve Toosevich		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Negative	Third-Party Comments
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Negative	Third-Party Comments
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		None	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Negative	Comments Submitted
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		None	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Santee Cooper	Chris Wagner		Affirmative	N/A
1	SaskPower	Wayne Guttormson		Abstain	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		None	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Negative	Comments Submitted
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Negative	Comments Submitted
1	Tennessee Valley Authority	David Plumb		Affirmative	N/A
1	Tri-State G and T Association, Inc.	Donna Wood		Affirmative	N/A
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Affirmative	N/A
2	Independent Electricity System Operator	Helen Lainis		Affirmative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Affirmative	N/A
2	Midcontinent ISO, Inc.	Bobbi Welch		Affirmative	N/A
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Affirmative	N/A
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Negative	Comments Submitted
3	AEP	Kent Feliks		None	N/A
3	Ameren - Ameren Services	David Jendras Sr		Abstain	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Negative	Comments Submitted
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Negative	Comments Submitted
3	Black Hills Corporation	Josh Combs		Negative	Comments Submitted
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Third-Party Comments
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Colorado Springs Utilities	Hillary Dobson		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		Affirmative	N/A
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Affirmative	N/A
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		Abstain	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	Glen Allegranza		None	N/A
3	JEA	Marilyn Williams		Negative	Third-Party Comments
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		Negative	Third-Party Comments
3	Lincoln Electric System	Sam Christensen		Negative	Comments Submitted
3	M and A Electric Power Cooperative	Stephen Pogue		Affirmative	N/A
3	Manitoba Hydro	Mike Smith		Negative	Comments Submitted
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Negative	Third-Party Comments
3	Muscatine Power and Water	Seth Shoemaker		Negative	Third-Party Comments
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Negative	Third-Party Comments
3	New York Power Authority	David Rivera		Negative	Third-Party Comments
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Negative	Comments Submitted
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Negative	Third-Party Comments
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Negative	Third-Party Comments
3	OTP - Otter Tail Power Company	Wendi Olson		None	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Negative	Comments Submitted
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A
3	Santee Cooper	Vicky Budreau		Affirmative	N/A
3	Seminole Electric Cooperative, Inc.	Marc Sedor		None	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		None	N/A
3	Snohomish County PUD No. 1	Holly Chaney		Affirmative	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Negative	Comments Submitted
3	Tennessee Valley Authority	Ian Grant		Affirmative	N/A
3	Tri-State G and T Association, Inc.	Ryan Walter		Affirmative	N/A
3	Wabash Valley Power Association	Scott Berry		Negative	Third-Party Comments
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Affirmative	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		None	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Third-Party Comments
4	CMS Energy - Consumers Energy Company	Aric Root		Affirmative	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Katrina Lyons		Negative	Third-Party Comments
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Negative	Third-Party Comments
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Affirmative	N/A
5	AES - AES Corporation	Ruchi Shah		Affirmative	N/A
5	Ameren - Ameren Missouri	Sam Dwyer		Abstain	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Negative	Comments Submitted
5	Basin Electric Power Cooperative	Amanda Wangler		Negative	Third-Party Comments
5	BC Hydro and Power Authority	Helen Hamilton Harding		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Affirmative	N/A
5	Black Hills Corporation	Sheila Suurmeier		Negative	Comments Submitted
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Third-Party Comments
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Negative	Third-Party Comments
5	Dairyland Power Cooperative	Tommy Drea		Abstain	N/A
5	Decatur Energy Center LLC	Megan Melham		Negative	Third-Party Comments
5	Dominion - Dominion Resources, Inc.	Anna Salmon		Affirmative	N/A
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		None	N/A
5	Duke Energy	Dale Goodwine		Affirmative	N/A
5	Entergy - Entergy Services, Inc.	Gail Golden		Affirmative	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		Negative	Third-Party Comments
5	Greybeard Compliance Services, LLC	Mike Gabriel		Negative	Third-Party Comments
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Negative	Third-Party Comments
5	Lakeland Electric	Carmen Rodriguez		Negative	Third-Party Comments
5	Lincoln Electric System	Brittany Millard		Negative	Comments Submitted
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Negative	Comments Submitted
5	Muscatine Power and Water	Neal Nelson		Negative	Third-Party Comments
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Negative	Comments Submitted
5	Nebraska Public Power District	Ronald Bender		Negative	Third-Party Comments
5	New York Power Authority	Zahid Qayyum		Negative	Third-Party Comments
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Negative	Third-Party Comments
5	NRG - NRG Energy, Inc.	Patricia Lynch		Negative	Comments Submitted
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A
5	Oglethorpe Power Corporation	Donna Johnson		Negative	Third-Party Comments
5	Omaha Public Power District	Kayleigh Wilkerson		Negative	Third-Party Comments
5	Ontario Power Generation Inc.	Constantin Chitescu		Negative	Comments Submitted
5	Orlando Utilities Commission	Dania Colon		None	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Negative	Third-Party Comments
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Negative	Third-Party Comments
5	Platte River Power Authority	Jon Osell		None	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Affirmative	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Affirmative	N/A
5	Seminole Electric Cooperative, Inc.	Melanie Wong		None	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Negative	Comments Submitted
5	Talen Generation, LLC	Donald Lock		Negative	Comments Submitted
5	Tennessee Valley Authority	Darren Boehm		Affirmative	N/A
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Affirmative	N/A
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	Vistra Energy	Daniel Roethemeyer		Negative	Third-Party Comments
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Mathew Miller		Affirmative	N/A
6	Ameren - Ameren Services	Robert Quinlivan		Abstain	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman		Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		None	N/A
6	Black Hills Corporation	Claudine Bates		Negative	Comments Submitted
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		Negative	Third-Party Comments
6	Con Ed - Consolidated Edison Co. of New York	Michael Foley		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		Affirmative	N/A
6	Duke Energy	John Sturgeon		Affirmative	N/A
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Lakeland Electric	Paul Shipps		Negative	Third-Party Comments
6	Lincoln Electric System	Eric Ruskamp		Negative	Comments Submitted
6	Manitoba Hydro	Kelly Bertholet		Negative	Comments Submitted
6	Muscatine Power and Water	Nicholas Burns		Negative	Third-Party Comments
6	New York Power Authority	Shelly Dineen		Negative	Third-Party Comments
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Negative	Comments Submitted
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	Comments Submitted
6	NRG - NRG Energy, Inc.	Martin Sidor		Negative	Comments Submitted
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Negative	Third-Party Comments
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Affirmative	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Affirmative	N/A
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		None	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Negative	Comments Submitted
6	Tennessee Valley Authority	Armando Rodriguez		None	N/A
6	WEC Energy Group, Inc.	David Boeshaar		Affirmative	N/A
6	Western Area Power Administration	Jennifer Neville		Negative	Comments Submitted
6	Xcel Energy, Inc.	Steve Szablya		Affirmative	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		Affirmative	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Abstain	N/A

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Showing 1 to 295 of 295 entries

BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/309)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll AB 2 NB
Voting Start Date: 11/21/2023 12:01:00 AM
Voting End Date: 11/30/2023 8:00:00 PM
Ballot Type: NB
Ballot Activity: AB
Ballot Series: 2
Total # Votes: 244
Total Ballot Pool: 281
Quorum: 86.83
Quorum Established Date: 11/30/2023 1:23:45 PM
Weighted Segment Value: 56.02

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes	Negative Fraction	Abstain	No Vote
Segment: 1	72	1	24	0.522	22	0.478	16	10
Segment: 2	6	0.4	2	0.2	2	0.2	2	0
Segment: 3	64	1	27	0.6	18	0.4	11	8
Segment: 4	15	1	8	0.667	4	0.333	2	1
Segment: 5	71	1	22	0.449	27	0.551	11	11
Segment: 6	44	1	18	0.621	11	0.379	8	7
Segment: 7	1	0.1	1	0.1	0	0	0	0
Segment: 8	1	0	0	0	0	0	1	0
Segment: 9	0	0	0	0	0	0	0	0
Segment: 10	7	0.5	5	0.5	0	0	2	0
Totals:	281	6	107	3.658	84	2.342	53	37

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Abstain	N/A
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Negative	Comments Submitted
1	Ameren - Ameren Services	Tamara Evey		Abstain	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Negative	Comments Submitted
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		Negative	Comments Submitted
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A
1	Basin Electric Power Cooperative	David Rudolph		None	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu		Abstain	N/A
1	Black Hills Corporation	Micah Runner		Negative	Comments Submitted
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Abstain	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Negative	Comments Submitted
1	Colorado Springs Utilities	Corey Walker		None	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		None	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		Negative	Comments Submitted
1	Duke Energy	Katherine Street		Negative	Comments Submitted
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Abstain	N/A
1	Glencoe Light and Power Commission	Terry Volkmann		Abstain	N/A
1	Great River Energy	Gordon Pietsch		Negative	Comments Submitted
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Negative	Comments Submitted
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Abstain	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Negative	Comments Submitted
1	Muscatine Power and Water	Andrew Kurriger		Negative	Comments Submitted
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Negative	Comments Submitted
1	Nebraska Public Power District	Jamison Cawley		Abstain	N/A
1	New York Power Authority	Daniel Valle		Negative	Comments Submitted
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Negative	Comments Submitted
1	NiSource - Northern Indiana Public Service Co.	Steve Toosevich		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Negative	Comments Submitted
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		None	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Negative	Comments Submitted
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		None	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A
1	Santee Cooper	Chris Wagner		Abstain	N/A
1	SaskPower	Wayne Guttormson		Abstain	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		None	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Negative	Comments Submitted
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Negative	Comments Submitted
1	Tennessee Valley Authority	David Plumb		Abstain	N/A
1	Tri-State G and T Association, Inc.	Donna Wood		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	Comments Submitted
2	Independent Electricity System Operator	Helen Lainis		Affirmative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Affirmative	N/A
2	Midcontinent ISO, Inc.	Bobbi Welch		Abstain	N/A
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Abstain	N/A
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Negative	Comments Submitted
3	AEP	Kent Feliks		None	N/A
3	Ameren - Ameren Services	David Jendras Sr		Abstain	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Negative	Comments Submitted
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Negative	Comments Submitted
3	Black Hills Corporation	Josh Combs		Negative	Comments Submitted
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Comments Submitted
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Colorado Springs Utilities	Hillary Dobson		Affirmative	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		Negative	Comments Submitted
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Negative	Comments Submitted
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		Abstain	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	Glen Allegranza		None	N/A
3	JEA	Marilyn Williams		Negative	Comments Submitted
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		Negative	Comments Submitted
3	Lincoln Electric System	Sam Christensen		Abstain	N/A
3	M and A Electric Power Cooperative	Stephen Pogue		Affirmative	N/A
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Negative	Comments Submitted
3	Muscatine Power and Water	Seth Shoemaker		Negative	Comments Submitted
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Abstain	N/A
3	New York Power Authority	David Rivera		Negative	Comments Submitted
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Negative	Comments Submitted
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Negative	Comments Submitted
3	Orlando Utilities Commission	Ballard Mutters		None	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Negative	Comments Submitted
3	PPL - Louisville Gas and Electric Co.	James Frank		None	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A
3	Santee Cooper	Vicky Budreau		Abstain	N/A
3	Seminole Electric Cooperative, Inc.	Marc Sedor		None	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		None	N/A
3	Snohomish County PUD No 1	Holly Chaney		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Negative	Comments Submitted
3	Tennessee Valley Authority	Ian Grant		Abstain	N/A
3	Tri-State G and T Association, Inc.	Ryan Walter		Negative	Comments Submitted
3	Wabash Valley Power Association	Scott Berry		Negative	Comments Submitted
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Abstain	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		None	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Comments Submitted
4	CMS Energy - Consumers Energy Company	Aric Root		Affirmative	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Katrina Lyons		Negative	Comments Submitted
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Negative	Comments Submitted
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Negative	Comments Submitted
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Abstain	N/A
5	AES - AES Corporation	Ruchi Shah		Negative	Comments Submitted
5	Ameren - Ameren Missouri	Sam Dwyer		Abstain	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Negative	Comments Submitted
5	BC Hydro and Power Authority	Helen Hamilton Harding		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Negative	Comments Submitted
5	Black Hills Corporation	Sheila Suurmeier		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Comments Submitted
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Negative	Comments Submitted
5	Dairyland Power Cooperative	Tommy Drea		Abstain	N/A
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		Negative	Comments Submitted
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		None	N/A
5	Duke Energy	Dale Goodwine		Negative	Comments Submitted
5	Entergy - Entergy Services, Inc.	Gail Golden		Affirmative	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		Negative	Comments Submitted
5	Greybeard Compliance Services, LLC	Mike Gabriel		Negative	Comments Submitted
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Negative	Comments Submitted
5	Lakeland Electric	Carmen Rodriguez		Negative	Comments Submitted
5	Lincoln Electric System	Brittany Millard		Abstain	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Negative	Comments Submitted
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Negative	Comments Submitted
5	Nebraska Public Power District	Ronald Bender		Abstain	N/A
5	New York Power Authority	Zahid Qayyum		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Negative	Comments Submitted
5	NRG - NRG Energy, Inc.	Patricia Lynch		Negative	Comments Submitted
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A
5	Oglethorpe Power Corporation	Donna Johnson		Negative	Comments Submitted
5	Omaha Public Power District	Kayleigh Wilkerson		Negative	Comments Submitted
5	Ontario Power Generation Inc.	Constantin Chitescu		Negative	Comments Submitted
5	Orlando Utilities Commission	Dania Colon		None	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Negative	Comments Submitted
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Negative	Comments Submitted
5	Platte River Power Authority	Jon Osell		None	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		None	N/A
5	PSEG Nuclear LLC	Tim Kucey		Abstain	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Abstain	N/A
5	Seminole Electric Cooperative, Inc.	Melanie Wong		None	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Negative	Comments Submitted
5	Talen Generation, LLC	Donald Lock		None	N/A
5	Tennessee Valley Authority	Darren Boehm		None	N/A
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Negative	Comments Submitted
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Abstain	N/A
6	AEP	Mathew Miller		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Ameren - Ameren Services	Robert Quinlivan		Abstain	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman		Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		None	N/A
6	Black Hills Corporation	Claudine Bates		Negative	Comments Submitted
6	Bonneville Power Administration	Tanner Brier		None	N/A
6	Con Ed - Consolidated Edison Co. of New York	Michael Foley		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		Negative	Comments Submitted
6	Duke Energy	John Sturgeon		Negative	Comments Submitted
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	Comments Submitted
6	Lincoln Electric System	Eric Ruskamp		Abstain	N/A
6	New York Power Authority	Shelly Dineen		Negative	Comments Submitted
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Negative	Comments Submitted
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	Comments Submitted
6	NRG - NRG Energy, Inc.	Martin Sidor		Negative	Comments Submitted
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Negative	Comments Submitted
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		None	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Abstain	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Abstain	N/A
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		None	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Negative	Comments Submitted
6	Tennessee Valley Authority	Armando Rodriguez		None	N/A
6	WEC Energy Group, Inc.	David Boeshaar		Affirmative	N/A
6	Western Area Power Administration	Jennifer Neville		Negative	Comments Submitted
6	Xcel Energy, Inc.	Steve Szablya		Abstain	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		Affirmative	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Abstain	N/A

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Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Action

- Approve the following waiver of provisions of the Standard Processes Manual (SPM) for Project 2021-07:
    - Additional formal comment and ballot period(s) reduced from 45 days to as little as 10 days, with ballot conducted concurrently during the last 5 days of the comment period. (Sections 4.9 and 4.12)

Background

As stated in the SAR, the primary purpose of this project is intended to address reliability related findings from FERC, NERC, and Regional Entity Joint Staff Inquiry into the February 2021 Cold Weather Grid Operations (joint inquiry). From February 8 - 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates, or failures to start, resulting in energy and transmission emergencies (referred to as "the Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 northeast blackout and the August 1996 west coast blackout. The Event was most severe from February 15 - February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years that jeopardized bulk-power system reliability.

Standards development under Project 2021-07 proceeded in two phases in accordance with a directive by the NERC Board of Trustees issued at its November 2021 meeting. Work under the first phase completed in September 2022 with the development of Reliability Standards EOP-012-1 and EOP-011-3 in 2022. Work under the second phase completed in September 2023 with the development of Reliability Standards EOP-011-4 and TOP-002-5.

On February 16, 2023, shortly before the first ballot on the phase two standards, FERC issued an order approving Reliability Standards EOP-011-3 and EOP-012-2 while directing five areas for additional revisions. FERC directed NERC to submit a revised EOP-012 standard by February 2024.[1]

NERC Standard Processes Manual Section 16.0 Waiver provides as follows:

> The Standards Committee may waive any of the provisions contained in this manual for good cause shown, but limited to the following circumstances:
>
> - In response to a national emergency declared by the United States or Canadian government that involves the reliability of the Bulk Electric System or cyber attack on the Bulk Electric System;
> - Where necessary to meet regulatory deadlines;

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[1] *Order Approving Extreme Cold Weather Reliability Standards EOP-011-3 and EOP-012-2 and Directing Modification of Reliability Standard EOP-012-1,* 182 FERC ¶ 61,094 (2023) (February 16, 2023 Order), available here.

- Where necessary to meet deadlines imposed by the NERC Board of Trustees; or
- Where the Standards Committee determines that a modification to a proposed Reliability Standard or its Requirement(s), a modification to a defined term, a modification to an Interpretation, or a modification to a Variance has already been vetted by the industry through the standards development process or is so insubstantial that developing the modification through the processes contained in this manual will add significant time delay.

Due to the issuance of FERC's February 16, 2023 Order directing further revisions to EOP-012 by February 2024, the Project 2021-07 drafting team was delayed in the planned development timeline for the standards addressing the phase 2 recommendations of the February 2021 joint inquiry report.

In August 2023, the Standards Committee approved a Waiver under Section 16.0 of the Standard Processes Manual to shorten comment periods from 45 to as few as 25 days, with a ballot and non-binding poll during the last 10 days, and to shorten the final ballot from 10 days to 5 days.

Due to the recent failed additional ballot for draft standard EOP-012-2, and the Commission's February 2024 deadline, the Project 2021-07 SDT leadership and NERC staff request that the SC consider a waiver of these provisions for EOP-012-2 to shorten the comment period further. This is necessary for the drafting team to have a second additional comment and ballot period to develop a consensus standard by the February 2024 FERC deadline.

Summary

SDT leadership and NERC staff recommend shortening the additional formal comment and ballot period(s) for Project 2021-07 from 45 days to as few as 10 days, with a ballot and non-binding poll concurrent during the last 5 days of the comment period.

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the third draft of the proposed standard for a formal 13-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24

Anticipated Actions	Date
10-day final ballot	February 2024
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component – Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component and/or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event – One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to refer to optimum practices, methods, or technologies, but rather to be acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**
2. **Number:** EOP-012-2
3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.
4. **Applicability:**

   4.1. Functional Entities:

   4.1.1. Generator Owner

   4.1.2. Generator Operator

   4.2. Facilities:

   4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following Bulk Electric System (BES) resources:

   4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

   4.2.1.2. A Blackstart Resource, identified in the BES definition, inclusion I3.

5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or
- Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature under Requirement R1 Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]

4.2. The generating unit cold weather data, as determined in Requirement R1.2;

4.3. Documentation identifying Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at

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[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at generating units owned by the Generator Owner; and

6.3. An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the Corrective Action Plan.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.2. Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

7.3. Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each Corrective Action Plan and the completion of actions for each Corrective Action Plan including revision history of each Corrective Action Plan and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review and updated operating limitations as needed. Acceptable evidence may include, but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. **Compliance Monitoring and Enforcement Program:** As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for

	5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.
R4.	The Generator Owner implemented a cold weather preparedness plan(s) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or

	• 5% or less of its total applicable personnel.	• more than 5%, but less than or equal to 10% of its total applicable personnel.	• more than 10%, but less than or equal to 15% of its total applicable personnel.	• more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a Corrective Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the third draft of the proposed standard for a formal 13-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24

Anticipated Actions	Date
10-day final ballot	February 2024
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component – Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component and/or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event – One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner~~,~~ ~~using good utility practice,~~[1] from implementing freeze protection measures on one or more Generator Cold Weather Critical Components~~. –~~ using the criteria below. Freeze protection measures are not intended to refer to optimum practices, methods, or technologies, but rather

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~~[1] The phrase "good utility practice" is being used in its common understanding. More information on this can be found in the Technical Rationale. This footnote is for information purposes only in the posting and will not be included in the term included in the NERC Glossary of Terms.~~

to be acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. Functional Entities:

   - **4.1.1.** Generator Owner
   - **4.1.2.** Generator Operator

   4.2. Facilities:

   - **4.2.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following Bulk Electric System (BES) resources:
     - **4.2.1.1.** A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or
     - **4.2.1.2.** A Blackstart Resource, identified in the BES definition, inclusion I3.

5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.54. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or
- Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature ~~per~~under Requirement R1 Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[3] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[3] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[4]

4.2. The generating unit cold weather data, as determined in Requirement R1.2;

4.3. Documentation identifying Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at

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[4] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at generating units owned by the Generator Owner; and

6.3. An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the Corrective Action Plan.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; ~~and~~

~~**7.1.4.** For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.~~

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

7.2. Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

7.3. Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing ~~actions~~selected action(s) contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each Corrective Action Plan and the completion of actions for each Corrective Action Plan including revision history of each Corrective Action Plan~~.~~ and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. ~~Perform an annual review and update~~Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed~~; and~~ when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability ~~per~~under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review and updated operating limitations as needed. Acceptable evidence may include~~,~~ but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: “Compliance Enforcement Authority” (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	**Moderate VSL**	**High VSL**	**Severe VSL**
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for

	5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.
R4.	The Generator Owner implemented a cold weather preparedness plan(s) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or

	• 5% or less of its total applicable personnel.	• more than 5%, but less than or equal to 10% of its total applicable personnel.	• more than 10%, but less than or equal to 15% of its total applicable personnel.	• more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a Corrective Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the third draft of the proposed standard for a formal 13-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24

Anticipated Actions	Date
10-day final ballot	February 2024
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component ~~-~~ – Any generating unit component and/or system, or associated ~~fixed fuel supply component~~Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component and/or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

~~**Extreme Cold Weather Temperature** – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.~~

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event ~~-~~ – One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit ~~and exceeding~~, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to refer to optimum practices, methods, or technologies, but rather to be acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed “unreasonable” when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-~~1~~2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

4.1. Functional Entities:

4.1.1. Generator Owner

4.1.2. Generator Operator

4.2. Facilities:

4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following Bulk Electric System (BES) resources:

~~**4.2.1.1** A Bulk Electric System generating unit that commits or is obligated to serve a Balancing Authority load pursuant to a tariff obligation, state requirement as defined by the relevant electric regulatory authority, or other contractual arrangement, rule, or regulation, for a continuous run of four hours or more at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius); or~~

4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

~~**4.2.1.2**~~ **4.2.1.2.** A Blackstart Resource

~~**4.2.2** Exemptions:~~

~~Any Bulk Electric System generating unit included under Section 4.2.1 above that has a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) under Requirement R3 Part 3.1 and as part of~~ , identified in the ~~required five year review in Requirement R4 Part 4.1 is exempt from further requirements in this standard~~BES definition, inclusion I3.

~~**4.2.2.1** A Bulk Electric System generating unit that is not committed or obligated to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) for any continuous run of more than four hours, but is called upon to operate for more than four hours in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius).~~

5. Effective Date: See Implementation Plan for Project 2021-07~~.~~ Phase 2.

B. Requirements and Measures

R1. ~~For~~At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- ~~)~~Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

~~R1.~~R2. Applicable to generating units with a commercial operation date ~~subsequent to [Effective Date of this requirement], the Generator Owner~~on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold

Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

~~•~~ Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate ~~for~~at the unit(s)’ Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours~~ at the Extreme Cold Weather Temperature for the unit(s), assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components;~~, or

- ~~Explain in a declaration any technical, commercial, or~~ (ii) the maximum operational ~~constraints, as defined by the Generator Owner, that preclude the ability to implement appropriate freeze protection measures to provide capability of operating for~~ duration for intermittent energy resources if less than twelve (12) continuous hours~~ at the documented Extreme Cold Weather Temperature.~~ ; or

~~**M1.** Each Generator Owner will have dated evidence that demonstrates it has the capability to operate in accordance with Requirement R1. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Documentation of cold weather preparedness plan, documentation of design features, any declaration that contains dated documentation to support constraints identified by the Generator Owner.~~

- ~~For each generating unit(s) in commercial operation prior to [Effective Date of this requirement], the Generator Owner shall ensure its generating unit(s)~~Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures ~~as needed~~ to provide the capability to operate ~~for a period of not less than one (1) hour~~ at the unit(s)’ Extreme Cold Weather Temperature~~. Generating unit(s) that are not capable of operating~~ with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for ~~one (1) hour at its Extreme Cold Weather Temperature shall develop a Corrective Action Plan (CAP) for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3. [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations*~~

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

~~*Planning*]~~intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a ~~CAP~~Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating ~~units~~unit(s) minimum temperature ~~per~~under Requirement R1 Part ~~3.5~~1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, ~~cold weather preparedness plan, and CAP~~and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for ~~their~~each unit~~(s) including the calculation date and source of temperature~~, as determined in Requirement R1;[3]

4.2. The generating unit cold weather data~~; ~~, as determined in Requirement R1.2;

4.3. Documentation identifying ~~the~~ Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which ~~may include~~includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures~~; and~~.

~~**3.1** Generating unit(s) cold weather data, to include:~~

~~**3.1.1** Generating unit(s) operating limitations in cold weather to include:~~

M4. ~~Capability and availability;~~

~~Fuel supply and inventory concerns;~~

~~Fuel switching capabilities; and~~

~~Environmental constraints.~~

~~Generating unit(s) minimum:~~

- ~~Design temperature;~~
- ~~Historical operating temperature; or~~
- ~~Current cold weather performance temperature determined by an engineering analysis.~~

Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement ~~R3.~~R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

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[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

~~**R3.** Once every five calendar years, each Generator Owner shall for each generating unit: *[Violation Risk Factor: Low] [Time Horizon: Operations Planning, Real-Time Operations]*~~

~~**4.1** Calculate the Extreme Cold Weather Temperature, and update the cold weather preparedness plan if this temperature is now lower than the previous lowest calculation;~~

~~**4.2** Review its documented generating unit(s) minimum temperature contained within its cold weather preparedness plan(s), pursuant to Part 3.5.2; and~~

~~**4.3** Review whether its generating units have the freeze protection measures required to operate at the Extreme Cold Weather Temperature pursuant to R1 or R2 as applicable, and if not develop a CAP for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3.~~

~~**M2.** Each Generator Owner will have dated, documented evidence that it reviewed temperature data and updated its cold weather preparedness plan(s) in accordance with Requirement R4.~~

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement ~~R3~~R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner ~~that owns a~~ shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall ~~develop a CAP,~~be developed within 150 days or by July 1, whichever is earlier,

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

~~that contains~~and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at ~~other~~ generating units owned by the Generator Owner; and

6.3. An identification of ~~any temporary~~ operating limitations or impacts to the cold weather preparedness plan~~,~~ that would apply until execution of the corrective action(s) identified in the ~~CAP~~Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a ~~CAP~~Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): ~~CAP~~Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the ~~CAP~~Corrective Action Plan.

R7. Each Generator Owner~~-~~, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.2. Implement ~~each CAP developed pursuant to Requirements R2, R4, or R6, or explain~~the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

7.3. Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration ~~why corrective actions are not being implemented due to any technical, commercial, or operational constraints as defined by~~, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

~~**7.2** Update each CAP if actions or timetables change, until completed.~~

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each ~~CAP~~Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement ~~R7~~R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each ~~CAP~~Corrective Action Plan and the completion of actions for each ~~CAP~~Corrective Action Plan including revision history of each ~~CAP~~Corrective Action Plan and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed an annual review and updated operating limitations as needed. Acceptable evidence may include, but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of an annual review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: “Compliance Enforcement Authority” (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall ~~keep~~retain data or evidence to ~~show compliance for three years~~support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1~~, R3, and R5~~ and Measure M1~~, M3, and M5~~.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for ~~Requirement~~Requirements R2 and ~~Measure~~R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4. ~~The Generator Owner shall retain any Corrective Action Plans under Requirement R4 Part 4.3 for three years or until the Corrective Action Plan is complete, whichever timeframe is greater.~~
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.
~~R1~~R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for 5% or less of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability~~Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 5%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 10%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 20% of its applicable units.

		less than or equal to 10% of its applicable units.	less than or equal to 20% of its applicable units.	
~~R2~~R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 20% of its applicable units.
~~R3~~R4.	The Generator Owner implemented a cold weather preparedness plan(s~~),~~) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement ~~R3~~R4.	The Generator Owner had and maintained a cold weather preparedness plan(s~~),~~) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement ~~R3~~R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement ~~R3~~R4.
~~**R4.**~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner failed to complete one of the applicable requirement parts in~~	~~The Generator Owner failed to complete two or more of the applicable requirement parts~~

	~~but was late by 30 calendar days or less.~~	~~but was late by greater than 30 calendar days, but less than or equal to 60 calendar days.~~	~~Requirement R4 Parts 4.1 through 4.3;~~ ~~OR~~ ~~The Generator Owner completed the actions required in Requirement R4, but was late by greater than 60 calendar days.~~	~~in Requirement R4 Parts 4.1 through 4.3.~~
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a ~~CAP~~Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a ~~CAP~~Corrective

				Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a ~~CAP or explained in a declaration why corrective actions are not being implemented~~Corrective Action Plan, but failed to update the ~~CAP~~Corrective Action Plan when ~~actions or timetables~~corrective action(s) changed~~,~~ in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a ~~CAP~~Corrective Action Plan or ~~explain~~failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	~~TBD~~October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2
Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report which called for development of new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012-1 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-1.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements, and making other enhancements directed by FERC in the Phase 1 Approval Order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2/EOP-012-1, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with the Phase 1 Approval Order, and proposed Requirement R8 requires Generator Owners to review declarations at least every five years, or as needed, when a change of status occurs and ensures operating limitations caused by the constraints are clearly identified. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter "Phase 1 Approval Order"), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1 but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2

Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report which called for development of new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012-1 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-1.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements, and making other enhancements directed by FERC in the Phase 1 Approval Order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2/EOP-012-1, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with the Phase 1 Approval Order, and proposed Requirement R8 requires Generator Owners to review declarations ~~annually to determine if circumstances have changed~~at least every five years, or as needed, when a change of status occurs and ensures operating limitations caused by the constraints are clearly identified. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter “Phase 1 Approval Order”), *notice denying reh’g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1 but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Unofficial Comment Form

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2

Do not use this form for submitting comments. Use the Standards Balloting and Commenting System (SBS) to submit comments on **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2** by **8 p.m. Eastern, Monday, January 22, 2024.**

Additional information is available on the project page. If you have questions, contact Manager of Standards Development, Alison Oswald (via email), or at 404-446-9668.

Background Information

Extreme cold weather and precipitation affected the south-central United States February 8-20, 2021. Many generating units experienced outages, derates, or failures to start, resulting in energy and transmission emergencies (referred to as "the Event"). The total Event firm Load shed was the largest controlled firm Load shed event in U.S. history and was the third largest in quantity of outage megawatts (MW) of Load after the August 2003 northeast blackout and the August 1996 west coast blackout. The Event was most severe February 15-18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized bulk-power system reliability. A joint inquiry was conducted to discover reliability-related findings and recommendations from FERC, NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity staff Joint Staff Inquiry into the February 2021 Cold Weather Grid Operations ("Joint Inquiry Report") was published on November 16, 2021.

The scope of the proposed project is to address the ten recommendations for new or enhanced NERC Reliability Standards proposed by the Joint Inquiry Report. In November 2021, the NERC Board of Trustees (Board) approved a Board Resolution directing that new or revised Reliability Standards addressing these recommendations be completed in accordance with the timelines recommended by the joint inquiry team, as follows:

- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2022/2023: development completed by September 30, 2022, for the Board's consideration in October 2022 to address Key Recommendations 1d, 1e, 1f, and 1j;
- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2023/2024: development completed by September 30, 2023, for the Board's consideration in October 2023 to address Key Recommendations 1a, 1b, 1c, 1g, 1h, and 1i.

On February 16, 2023, the Commission issued an order approving proposed Reliability Standards EOP-011-3 and EOP-012-1. The order directed changes in five areas of the standard. Reliability Standard EOP-012-2 was revised to address Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[1]

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[1] Order.

Questions

In Paragraph 66 of the FERC order, the Commission directed NERC to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints in EOP-012-1.

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

   ☐ Yes
   ☐ No

   Comments:

Paragraph 88 directed NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet. Such an approach will reduce reliability risks more quickly.

2. As opposed to staggering, the SDT chose to shorten the time frame in the implementation plan for the standard as a whole. The SDT responded to industry comments with concerns that staggering did not need to be explicitly required as this will happen naturally due to outage scheduled and resource availability. Do you agree with this approach?

   ☐ Yes
   ☐ No

   Comments:

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

3. Based on industry comments that constraints are expected to be rare and the conditions that drive them will not change frequently, the SDT moved from an annual to a 5-year review. Do you agree with this change?

☐ Yes
☐ No

Comments:

4. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. After reviewing the comments on the previous posting, the team determined to not change the timeframe in the posted implementation plan for reasons explained in the Consideration of Comments. If you have any further comments, please provide them here.

	EOP-012-1	**EOP-012-2**
Effective Date	10/1/2024	10/1/2024
Have Capability to Operate at ECWT or CAP Developed	4/1/2028	10/1/2025
CAP Completed	no end date specified	10/1/2027 (R7.1.1) or 10/1/2029 (R7.1.2)

☐ Yes
☐ No

Comments:

5. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

   ☐ Yes
   ☐ No

   Comments:

6. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

   Comments:

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Mapping Document

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Summary

This mapping document maps the recommendations from The February 2021 Cold Weather Outages in Texas and the South Central United States report (The Report) to proposed Reliability Standard EOP-012-2. This mapping document also maps how the drafting team considered FERC's directives for further revisions to Reliability Standard EOP-012-1 in its February 16, 2023 approval order[1] in proposed EOP-012-2.

Recommendation 1a

To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start.

Standard: EOP-012-2		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
Generator Cold Weather Critical Component - Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

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[1] *N. Am. Elec. Reliability Corp.*., 182 FERC ¶ 61,094 (2023) (approving Reliability Standards EOP-011-3 and EOP-012-1 and directing further revisions to EOP-012-1 and the implementation plan) ("February 2023 Order").

	and/or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.2** Documentation identifying the Generator Cold Weather Critical Components	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.3** Documentation identifying Generator Cold Weather Critical Components;	The SDT maintained the language in approved EOP-012-1 R3 and moved it to R4 for Generators Owners to identify Generator Cold Weather Critical Components to meet recommendation 1a.

Recommendation 1b
To require Generator Owners to identify and implement freeze protection measures for the cold-weather-critical components and systems. The Generator Owner should consider previous freeze-related issues experienced by the generating unit, and any corrective or mitigation actions taken in response. At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
Generator Cold Weather Critical Component Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component and/or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

	parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.3** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generators Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.
This requirement does not exist in the currently approved standard.	**R6.** Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32	To meet recommendation 1b "the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary", the drafting team has

	degrees Fahrenheit (zero degrees Celsius),[2] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: **6.3.** An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.	proposed R6.3. through the CAP process for Generator Owners to update the list of Generator Cold Weather Critical Components in the cold weather preparedness plan in R4.
R.1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning] **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.1** The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]	The standard drafting team reorganized the standard to provide clarity to the applicability and requirements consistent with the FERC directives. Requirement R1 sets the stage for subsequent requirements. Requirement R1 specifies that each Generator Owner shall calculate its Extreme Cold Weather Temperature at

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

date and source of temperature data; and **1.2.1**. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within six (6) months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and	**4.2** The generating unit cold weather data, as determined in Requirement R1.2; **4.3** Documentation identifying Generator Cold Weather Critical Components; **4.4** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and **4.5** Annual inspection and maintenance of generating unit(s) freeze protection measures.	least once every five years and, if the recalculated temperature is now lower than what it was previously, update its plan and freeze protection measures to provide capability to operate at the new, lower temperature. This requirement addresses the last sentence of Recommendation 1b: "At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary."

1.2.1.4. Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature and if available, the concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.		

Recommendation 1c

To revise EOP-011-2, R7.3.2, to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
3.5.2 Generating unit(s) minimum: - Design temperature; - Historical operating temperature; or - Current cold weather performance temperature determined by an engineering analysis.	**1.2.2.** Generating unit(s) minimum: - Design temperature, and if available, the concurrent wind speed and precipitation; - Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or - Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	The SDT has proposed modifications to the existing language in EOP-012-1 R3.5.2 and moved it to R1.2.2 to account for the effects of precipitation and the cooling effects of wind when providing the generating unit minimum temperature.
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum:	**R4**. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generators Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.

3.3 Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	

FERC February 2023 Order Directives – Applicability (Paragraphs 58-60)

The Commission directed NERC to revise the applicability of the standard to ensure that it captures all BES generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions, consistent with the drafting team's stated intent. The Commission also directed NERC to revise the EOP-012-1 standard to ensure that all BES generating units are required to maintain and train on cold weather preparedness plans and maintain information regarding cold weather operating parameters consistent with EOP-011-2 Requirements R7 and R8.

The Commission deferred its decision on whether to approve the proposed effective date of EOP-011-3 until NERC submits the revised applicability section of EOP-012 to ensure all entities currently covered by the EOP-011-2 standard would remain covered under the revised EOP-012 standard.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 58: "[W]e direct NERC...to modify Reliability Standard EOP-012-1 to ensure that it captures all bulk electric system generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions...NERC should ensure the modified applicability is implemented as of the effective date of Reliability Standard EOP-012-1."	**4.2. Facilities:** **4.2.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources: **4.2.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.2.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3.	The SDT determined that EOP-012-1 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a Bulk Electric System (BES) resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC

		Glossary of Terms, are those units designated in the Transmission Operator’s restoration plans. Requirements for generator cold weather freeze protection measures would continue to apply only to generation that is relied upon during freezing conditions, consistent with EOP-012-1 and the recommendations of the Joint Inquiry Report. However, those limitations are identified in those specific requirements, rather than in the applicability sections of the standard.
PP 59-60: “Given the lack of clarity in the proposed applicability criteria for EOP-012-1, we are concerned that the standard could apply to significantly fewer generators than the existing Reliability Standard EOP-011-2 Requirements R7 and R8…. Furthermore, we are concerned that the proposed applicability criteria for EOP-012-1 and retirement of EOP-011-2 Requirements R7 and R8 will eliminate valuable information on cold weather preparedness of generating units that typically do not operate during the winter….	**R1.** At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and **1.1.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s)	The SDT proposes a new R1 which does not have any exclusions, meaning all generating units subject to this standard under the facilities section will be subject to this requirement. For more information on applicable entities please see the write-up above.

The loss of this information concerns us as the proposed applicability of EOP-012-1 recognizes that units that do not typically run during the winter may be called upon during emergencies. We therefore direct NERC to modify EOP-012-1 to ensure that this information remains available.”	under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and **1.2.1.4.** Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the concurrent wind speed and precipitation;	

	- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or - Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	

FERC Order Directives - Generator Constraints to Implementing Winterization Requirements (Paragraph 66)

The Commission directed NERC to develop modifications to EOP-012-1 Requirements R1 and R7 to address concerns related to generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures. Specifically, the Commission directed NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 66: "[W]e direct NERC…to develop and submit modifications to Reliability Standard EOP-012-1 Requirements R1 and R7 to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures and to ensure that the constraint declarations may not be used to opt-out of compliance with the Standard or obligations set forth in a corrective action plan. Specifically, we direct NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7.	<u>**Generator Cold Weather Constraint**</u> – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to refer to optimum practices, methods, or technologies, but rather to be acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions. Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision was made: • Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;	The SDT proposed a new defined term, Generator Cold Weather Constraint. In developing this term, the team considered the components of the broadly used term "good utility practice" for what qualifies as a permissible constraint. Constraints generally consist of situations where there is no technological solution or the available technology is unproven, or where the solution cannot be implemented at a reasonable cost consistent with good business practices, reliability, or safety. While reliability and safety considerations are generally well understood, the team determined that additional clarification was needed in the definition regarding the reasonableness of costs. The proposed

	• Could not have been expected to accomplish the desired result; or • Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life. *AND* **R8**. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: **8.1.** Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and **8.2.** Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.	language is intended to conform the discussion of cost reasonableness with the drafting team's original intent when drafting the EOP-012 standard; namely, that the standard be rigorous in support of cold weather reliability, but not be so overly burdensome that generators would remove their units from service during the winter months rather than comply, which in turn could make cold weather supply challenges worse. In developing this language, the drafting team considered comments on multiple drafts and believes the current approach represents a balanced consideration of the various factors raised while maintaining a high bar for cold weather reliability. The FERC order directed NERC to "identify the appropriate entity that would receive the generator owner's constraint declarations." The SDT believes that the intent of this language is for identified operating limitations to be provided to necessary entities who have a wide area view (i.e., Balancing Authorities or Reliability Coordinators) and are responsible for grid planning and reliability. The drafting team has

		written Requirement R8 to require Generator Owners to update the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003 and IRO-010. The standard drafting team understands that issues related to compliance with the standard and entity use of the constraint provisions will be addressed as part of the work plan submitted in accordance with PP94-96.

FERC Order Directives - Generator Capability Requirements (Paragraphs 89-90)

The Commission directed NERC to modify EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the standard. The Commission also directed NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 89: “[W]e direct NERC to modify the Standard to clarify Reliability Standard EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard.”	**4.3. Facilities:** **4.3.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following BES resources: **4.3.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.3.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3. *AND* **R2.** Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or	The SDT proposes a new facilities section with include all BES generating units in the standard. Additionally, Requirement R2 has been modified to cover the example in the order “(e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard.” Requirement R2 provides that intermittent energy resources should have the capability to provide as much generation as operationally possible if that is less than 12 hours.

	below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] shall: • Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or • Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve	

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	(12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.	
P 90: “We also find that the one-hour continuous operations requirement in Reliability Standard EOP-012-1 Requirement R2 is too short of a period to adequately meet the purpose of the Standard to ensure generating units “mitigate the reliability impacts of extreme cold weather[.]” Thus, we direct NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.	**R3.** Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] shall: • Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or • Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to	The SDT did not intend for the requirement to be interpreted as a 1 – hour reliability requirement. As such, the 1-hour statement has been removed from the standard to make sure there is no misunderstanding.

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	operate at the unit(s)' Extreme Cold Weather Temperature.	

FERC Order Directives - Corrective Action Plan Deadlines (Paragraph 79)

For any requirement requiring the development of a corrective action plan to address capability or cold weather performance issues, the Commission directed NERC to include a deadline or maximum period for the completion of corrective action plan measures.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 79: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to address concerns related to the lack of an implementation timeframe for corrective action plans. Specifically, we direct NERC to include in the Standard a deadline or maximum period for the implementation completion of corrective action plans under the Standard."	**R7.** Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: **7.1.** Include a timetable for implementing the selected corrective action(s) that shall: **7.1.1.** List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan; **7.1.2.** List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and	The SDT proposed new Requirement R7 which includes timetables for CAP completion. These timetables are consistent with those provided for corrective actions in the TPL-007 standard.

FERC Order Directives - Implementation Plan Considerations (Paragraphs 37, 58, 88)

The Commission directed NERC to require a shorter implementation period than five years post approval, as well as a staggered implementation for unit(s) across a generator owner's fleet (e.g., 30% compliant by Year X, 60% compliant by Year Y, 100% compliant by Year Z). The Commission also directed NERC to develop standards modifications addressing standard applicability and other matters without delaying the effective date of EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 88: "[W]e direct NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet… Although we are giving NERC the discretion to determine what the effective date should be shortened to, we also emphasize that industry has been aware of and alerted to the need to prepare their generating units for cold weather since at least 2011. NERC should consider the amount of time that industry has already had to implement freeze protection measures when determining the appropriate shorter implementation period."	**Compliance Date for EOP-012-2 - Requirement R3** Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.	The Commission allows NERC to propose an equally effective and efficient solution to a solution offered by the Commission to address a reliability matter. The Commission expressed concern regarding the length of the original EOP-012-1 implementation plan and identified to reduce reliability risks more quickly – a shortened plan with a staggered implementation period. The standard drafting team has determined an alternative proposal, to shorten the implementation period for winterization measures to 12 months across an entire fleet, addresses the Commission's concerns in an equally effective and efficient manner. The implementation of such measures would be subject to deadlines for Corrective

		Action Plan measures in EOP-012-2 Requirement R7. This proposal provides certainty as to the timeframes required for action, reduces reliability risks more quickly than the EOP-012-1 plan it replaces, and avoids some of the administrative burdens and uncertainties with a percent compliant implementation plan, particularly for entities with nationwide fleets or multiple NCR/MRRE registrations. Further, this approach provides entities with flexibility to implement corrective actions across their fleets in an efficient manner, such as where similar units across a fleet require similar changes. The drafting team expects that, as a practical matter, there will be some natural staggering when implementing corrective measures. The overall shortened timeframe helps ensure that the actions are completed in a more expeditious manner and more units are reliable year over year (or, when constraints are declared, the extent is fully understood) than under the original EOP-012-1 standard. Thus, the proposed approach provides an equally effective and efficient alternative to addressing the

		reliability consideration underlying the Commission’s directive.
P 37: “[W]e also direct NERC to develop modifications to address the concerns regarding Requirements R1 and R7, as well as other concerns we have identified as to other aspects of Reliability Standard EOP-012-1, without delaying the effective date of Reliability Standard EOP-012-1.” P 58: “…NERC should ensure the modified applicability [of the EOP-012 standard] is implemented as of the effective date of Reliability Standard EOP-012-1.”		Under the proposed implementation plan, Reliability Standard EOP-012-2 would become effective on the later of: (1) October 1, 2024, which is the date EOP-012-1 is scheduled to become effective; or (2) the first day of the first calendar quarter that is three months following Commission approval. Thus, the effective date of a revised EOP-012 standard addressing the Commission’s concerns would not be delayed past the effective date of EOP-012-1, so long as EOP-012-2 is approved before July 1, 2024. Any delay after that time would be modest and in the interest of providing sufficiently reasonable notice to entities of their revised obligations.

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Violation Risk Factor and Violation Severity Level Justifications

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

This document provides the standard drafting team's (SDT's) justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination. Each requirement is assigned a VRF and a VSL. These elements support the determination of an initial value range for the Base Penalty Amount regarding violations of requirements in FERC-approved Reliability Standards, as defined in the Electric Reliability Organization's (ERO) Sanctions Guidelines. The SDT applied the following NERC criteria and FERC Guidelines when developing the VRFs and VSLs for the requirements.

NERC Criteria for Violation Risk Factors

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

A requirement that, if violated, could directly affect the electrical state or the capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System. However, violation of a medium risk requirement is unlikely to lead to Bulk Electric System instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to Bulk Electric System instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System.

FERC Guidelines for Violation Risk Factors

Guideline (1) – Consistency with the Conclusions of the Final Blackout Report

FERC seeks to ensure that VRFs assigned to Requirements of Reliability Standards in these identified areas appropriately reflect their historical critical impact on the reliability of the Bulk-Power System. In the VSL Order, FERC listed critical areas (from the Final Blackout Report) where violations could severely affect the reliability of the Bulk-Power System:

- Emergency operations
- Vegetation management
- Operator personnel training
- Protection systems and their coordination
- Operating tools and backup facilities
- Reactive power and voltage control
- System modeling and data exchange
- Communication protocol and facilities
- Requirements to determine equipment ratings
- Synchronized data recorders
- Clearer criteria for operationally critical facilities
- Appropriate use of transmission loading relief.

Guideline (2) – Consistency within a Reliability Standard

FERC expects a rational connection between the sub-Requirement VRF assignments and the main Requirement VRF assignment.

Guideline (3) – Consistency among Reliability Standards

FERC expects the assignment of VRFs corresponding to Requirements that address similar reliability goals in different Reliability Standards would be treated comparably.

Guideline (4) – Consistency with NERC's Definition of the Violation Risk Factor Level

Guideline (4) was developed to evaluate whether the assignment of a particular VRF level conforms to NERC's definition of that risk level.

Guideline (5) – Treatment of Requirements that Co-mingle More Than One Obligation

Where a single Requirement co-mingles a higher risk reliability objective and a lesser risk reliability objective, the VRF assignment for such Requirements must not be watered down to reflect the lower risk level associated with the less important objective of the Reliability Standard.

NERC Criteria for Violation Severity Levels

VSLs define the degree to which compliance with a requirement was not achieved. Each requirement must have at least one VSL. While it is preferable to have four VSLs for each requirement, some requirements do not have multiple "degrees" of noncompliant performance and may have only one, two, or three VSLs.

VSLs should be based on NERC's overarching criteria shown in the table below:

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

FERC Order of Violation Severity Levels

The FERC VSL guidelines are presented below, followed by an analysis of whether the VSLs proposed for each requirement in the standard meet the FERC Guidelines for assessing VSLs:

Guideline (1) – Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance

Compare the VSLs to any prior levels of non-compliance and avoid significant changes that may encourage a lower level of compliance than was required when levels of non-compliance were used.

Guideline (2) – Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties

A violation of a "binary" type requirement must be a "Severe" VSL.
Do not use ambiguous terms such as "minor" and "significant" to describe noncompliant performance.

Guideline (3) – Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement

VSLs should not expand on what is required in the requirement.

Guideline (4) – Violation Severity Level Assignment Should Be Based on a Single Violation, Not on a Cumulative Number of Violations

Unless otherwise stated in the requirement, each instance of non-compliance with a requirement is a separate violation. Section 4 of the Sanctions Guidelines states that assessing penalties on a per violation per day basis is the “default” for penalty calculations.

EOP-012-2

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
NERC VRF Discussion	A VRF of Lower is appropriate due to the fact that calculating the Extreme Cold Weather Temperature and identifying generating unit cold weather data is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Lower VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Lower VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC	This VRF is in line with the definition of a Lower VRF requirement per the criteria filed with FERC as part of the ERO’s Sanctions Guidelines.

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
Definitions of VRFs	
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R1			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R1	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R1	
Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R2

The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1).

VSL Justification for EOP-012-2, Requirement R2

The VSL had minor changes from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1) due to changes in the standard language and reorganization of requirements.

VSLs for EOP-012-2, Requirement R2			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for 5% or less of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability~~ Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not ~~explain in~~ develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~ Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~ Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~ Corrective Action Plan for more than 20% of its applicable units.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of medium is appropriate due to the fact generating units that are not capable of operating at its Extreme Cold Weather Temperature could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO’s Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSL Justification for EOP-012-2, Requirement R3

The VSL had minor changes due to changes in the standard language from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R2).

VSLs for EOP-012-2, Requirement R3			
Lower	**Moderate**	**High**	**Severe**

The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R3	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R3	
Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R4

The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VSL Justification for EOP-012-2, Requirement R2

The VSL did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VRF Justification for EOP-012-2, Requirement R5

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R5

The VSL did not change from the previous EOP-012-1 Reliability Standard.

VRF Justification for EOP-012-2, Requirement R6

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R6

VSL had minor changes due to minor revisions in the standard language.

VRF Justification for EOP-012-2, Requirement R7

The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R7

VSL had changes due to revisions in the standard language.

VSLs for EOP-012-2, Requirement R7			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner implemented a ~~CAP or explained in a declaration why corrective actions are not being implemented~~Corrective Action Plan, but failed to update the ~~CAP~~Corrective Action Plan when ~~actions or timetables~~corrective action(s) changed~~,~~ in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a ~~CAP~~Corrective Action Plan or ~~explain~~failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of Medium is appropriate due to the fact that not updating Generator Cold Weather Constraint declarations and updating operating limitations associated with capability and availability could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R8			
Lower	**Moderate**	**High**	**Severe**
N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

VSL Justifications for EOP-012-2, Requirement R8	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

January 2024

RELIABILITY | RESILIENCE | SECURITY

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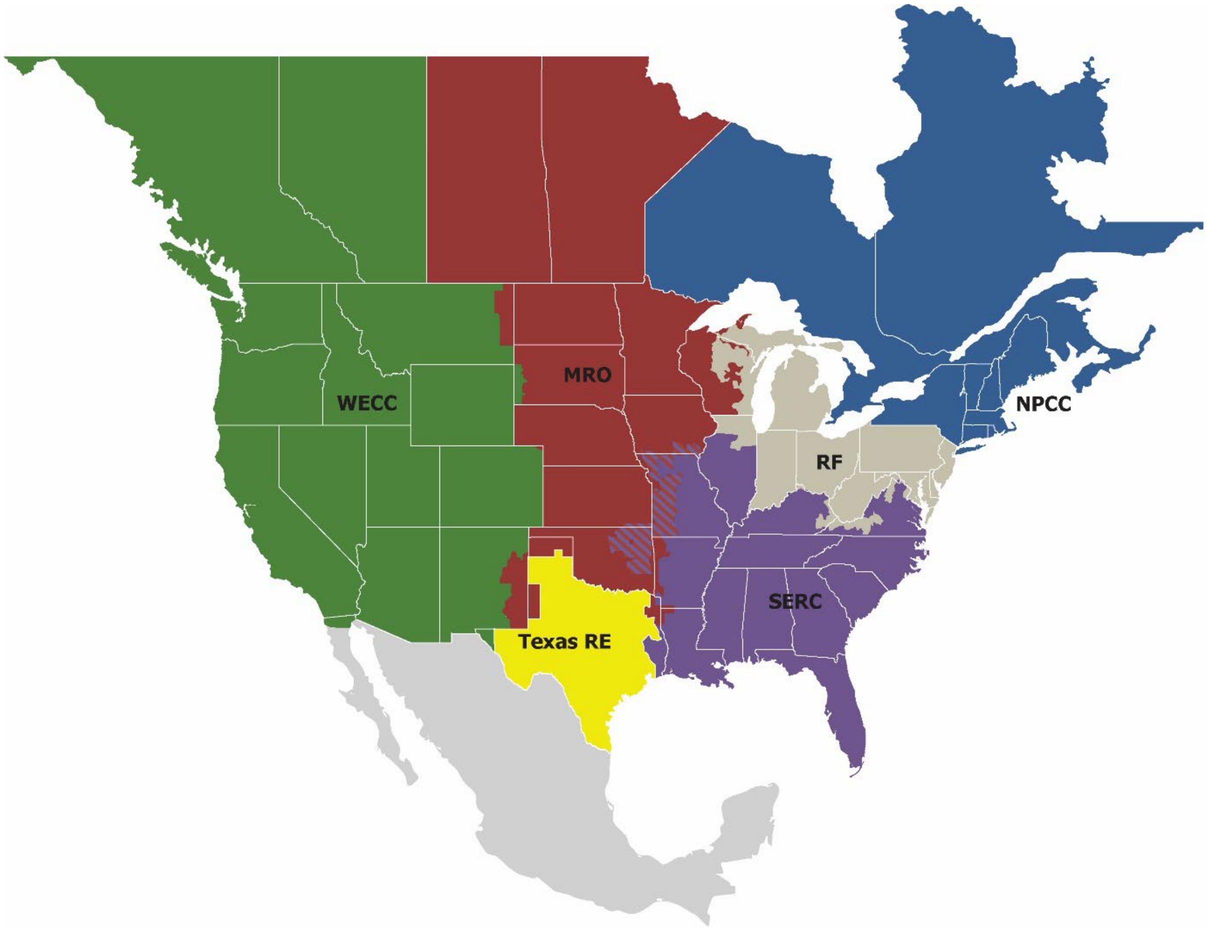
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of NERC and the six Regional Entities, is a highly reliable, resilient, and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entities as shown on the map and in the corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources could include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. GOs may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature, but upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT, such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility. Please reference the Calculating Extreme Cold Weather Temperature document drafted by the SDT for more information on how to calculate the ECWT.[6]

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

[6] Report (nerc.com)

Generator Cold Weather Critical Component

Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component and/or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing and are critical to the operation of generating units. GOs should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components. The SDT also felt it is appropriate to specifically exclude components that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner would not constitute a freezing condition in the context of this Standard, and therefore, these lines would not be considered a Generator Cold Weather Critical Component.

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement, but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

<u>Key Recommendation 1d:</u> To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or

failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a Corrective Action Plan (CAP) for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, or freezing rain) on equipment. The SDT felt that it was important to clearly call out freezing precipitation as these events were included in the outages and derates that identified as freezing in the Joint Inquiry Report. Furthermore, Key Recommendation 1c of the report requires GOs to account for the effect of precipitation. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. Also excluded are proactive operational actions to limit the potential of forced outages or derates. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs). From the GADS data reporting instructions, the startup period for each unit is determined by the operating company. It is unique for each unit and depends on the condition of the unit at the time of startup (cold, warm, or hot). A typical unit startup occurs in three phases: warm up, synchronization, and ramp up. NERC defines a startup period to begin with the command to start and end when the unit is synchronized. A Startup Failure begins when a problem preventing the unit from synchronizing occurs. The Startup failure ends when the unit is synchronized, another Startup Failure occurs, or the unit enters another permissible state.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement

- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint

Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to refer to optimum practices, methods, or technologies, but rather to be acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision was made:

- *Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;*
- *Could not have been expected to accomplish the desired result; or*
- *Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.*

The SDT reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. The SDT relied upon the industry's long practice of using "good utility practice" as a basis for implementing new practices, methods, or technologies and as such developed a definition that largely built upon this language and approach. The SDT also ensured that constraint language would be fully captured within the standard itself and was customized to the freeze protection measures that will be implemented as part of this standard.

The following non-comprehensive list contains examples that may, depending on the circumstances, constitute a Generator Cold Weather Constraint(s):

- Warranties that would be voided by application of a freeze protection measure
- Accelerated retirement of an existing generating unit
- Cancellation of new generating unit(s)
- Reduction in summer capability
- Introduces an increased personnel or safety risk
- Introduces a risk of noncompliance with environmental regulations
- Compromised ability to provide ancillary services
- Technology not utilized by a significant portion of the electric utility industry

Ultimately, it will be the GO's responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented. A declaration that no further corrective actions will be taken is expected to be used sparingly.

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard. Furthermore, the SDT wants to ensure that the standard language supports the adoption of new freeze protection practices, methods, or technologies while not immediately requiring a new freeze protection practice, method, or technology to be implemented industry-wide when a leading utility pilots a novel approach, as this would be a disincentive to utilities piloting new technologies. The SDT encourages additional studying of freeze protection measures to remove constraints as appropriate over time.

Facilities

4.1. *Facilities:*

  - ***4.1.1.*** *Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:*
    - ***4.1.1.1.*** *A BES generating resource identified in the BES definition, Inclusion I2 and I4; or*
    - ***4.1.1.2.*** *A Blackstart Resource, identified in the BES definition, Inclusion I3.*

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

- ***1.1.*** *Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and*
  - ***1.1.1.*** *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.*
- ***1.2.*** *Identify generating unit(s) cold weather data, to include:*
  - ***1.2.1.*** *Generating unit(s) operating limitations in cold weather to include:*
    - ***1.2.1.1.*** *Capability and availability;*
    - ***1.2.1.2.*** *Fuel supply and inventory concerns;*
    - ***1.2.1.3.*** *Start-up issues;*
    - ***1.2.1.4.*** *Fuel switching capabilities; and*
    - ***1.2.1.5.*** *Environmental constraints.*
  - ***1.2.2.*** *Generating unit(s) minimum:*
    - *Design temperature and if available, the concurrent wind speed and precipitation;*
    - *Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or*
    - *Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003-5 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and precipitation. Consideration of wind and precipitation, along with the minimum temperature, provides a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual future cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),*[7] *shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or*
- *Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report[8] suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, 2027). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

GOs with generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then must implement the CAP according to R7. In addition, it is recognized that Generator Cold Weather Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.4, the option for the GO to make a declaration

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[7] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[8] sw-task-force-cover-new2.psd (nerc.com)

supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter in most regions of the US and Canada. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather conditions.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),*[9] *shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or*
- *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.*

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

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[9] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

- ***4.1*** *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*
- ***4.2*** *The generating unit cold weather data, as determined in Part 1.2;*
- ***4.3*** *Documentation identifying Generator Cold Weather Critical Components;*
- ***4.4*** *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*
- ***4.5*** *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2, and is intended to be used and reviewed regularly by the GO. R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012-2, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003-5 and IRO-010-4. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The NERC *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[10], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[10] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

R5. *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an "annual" basis. The Joint Inquiry Report explains "Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area."[11] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word "annual" to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The training shall be provided to operational personnel who are responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. The operational personnel includes employees of the Registered Entity as well as any dedicated on-site full-time contractors or equipment OEM personnel responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. Vendors who perform inspection, maintenance, or installation of freeze protection measures prior to the winter season do not need to receive the training on the cold weather preparedness plan.

The training for personnel shall include instructions on actions taken to prepare the generating unit(s) for cold weather operations prior to the cold weather season as well as on actions taken when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, review of special inspections or rounds implemented during severe weather, fuel switching procedures, and maintenance of freeze protection measures, etc.

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[11] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[12] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

- **6.1.** *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*
- **6.2.** *A review of applicability to similar equipment at generating units owned by the Generator Owner; and*
- **6.3.** *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.*

Key Recommendation 1d: *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.*

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads "A list of actions and an associated timetable for implementation to remedy a specific problem." As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

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[12] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the RTO's.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site's ECWT. By using the site's ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. *Include a timetable for implementing the selected corrective action(s) that shall:*

7.1.1. *List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;*

7.1.2. *List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;*

7.1.3. *List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;*

7.2. *Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;*

7.3. *Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and*

7.4. *Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. At the same time, the SDT recognizes that the following limitations make the 24 and 48 calendar months maximum timelines reasonable: scoping applicability to similar units, freeze protection engineering and design, project development, annual budgeting process, material supply lead times, outage scheduling, skilled labor availability, and startup/commissioning. Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future. The SDT added part 7.1.3. for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues. In establishing these timeframes, the SDT considered the FERC directives, and that NERC include a timeframe for completion for CAPs, shorten the implementation plans, and that NERC stagger Implementation Plans to have more generation compliant faster. The SDT considered a staggered timeframe both in the standard and IP but determined that more aggressive completion time frames, combined with a shorter implementation plan, would serve the reliability goal to have generating units operating at the ECWT with less administrative burden that could be associated with proving compliance with a staggered implementation plan fleet wide. There is not specific staggering within the 24- or 48-month completing time frames because of industry concern about additional complications of completing work efficiently. There will be some natural staggering due to unit outages and personnel availability as an example.

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. GOs that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

If one or more actions within a CAP fall under a declaration, it is the intent of the SDT that only those selected actions would not be implemented as part of the CAP. The remaining actions should be implemented.

Requirement R8

> ***R8.*** *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
>
> ***8.1*** *Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and*
>
> ***8.2*** *Update the operating limitations associated with capability and availability under Requirement R1 Part 1.2 if applicable.*

In the FERC order, the Commission expressed concern that a GO may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT.[1] An additional concern was that the constraint declarations may be used by a functional entity as an opt-out of compliance set forth in the standards or a corrective action plan.[2] To mitigate the concern, the Commission directed NERC to work with Commission staff and submit a data collection and assessment plan that contains information related to GO constraint declarations and explanations thereof.[3] The SDT expects that ERO compliance staff will be the entity responsible for reviewing declared constraints and assessing compliance with the constraint definition criteria in accordance with established processes.

The SDT developed R8 to require the GO to perform a review and update any constraint declarations as needed. The SDT believes that constraints will be the exception. When GO's experience a constraint such that they need to take a declaration the SDT believes the limiting factor causing the constraints will not change quickly and as such a 5-year review is the appropriate time. While the SDT implemented a 5-year maximum time frame to review, it is the SDTs intent that the GO's will be cognizant of their Cold Weather Constraints and will proactively remove these constraints where warranted. For instance, if a unit is slated for retirement and this status changes, it is the expectation of the SDT that the GO will review constraints based upon this impending retirement and will no longer take this constraint for future CAPs that may require the implementation of freeze protection measures on this unit given that it is no longer slated for retirement.

Updated constraint declarations would also require an update to the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003-5 and IRO-010-4.

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[1] FERC Order, 182 FERC ¶ 61,094 at P 64.

[2] Id. At P 66.

[3] See id at PP 11, 68, 94-95.

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

~~October 2023~~January 2024

RELIABILITY | RESILIENCE | SECURITY

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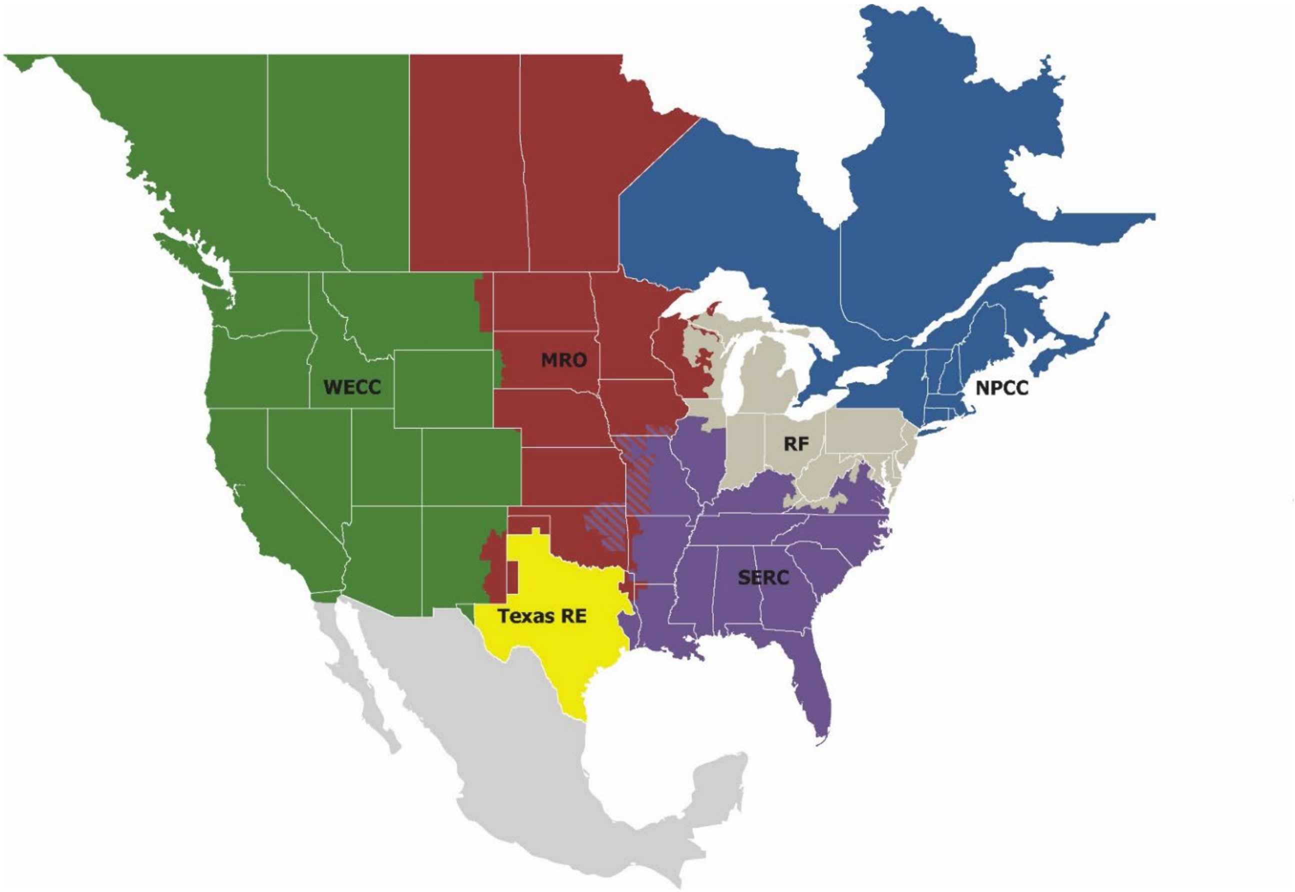
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of ~~the North American Electric Reliability Corporation (~~NERC~~)~~ and the six Regional Entities, is a highly reliable, resilient, and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional ~~Entity boundaries~~Entities as shown ~~in~~on the map and in the corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	~~WECC~~Western Electricity Coordinating Council

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources ~~would~~could include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. GOs may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports~~ at a 99%+ availability.~~. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature, but upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT, such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility. Please reference the Calculating Extreme Cold Weather Temperature document drafted by the SDT for more information on how to calculate the ECWT.[6]

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

[6] Report (nerc.com)

Generator Cold Weather Critical Component

Any generating unit component and/or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component and/or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing and are critical to the operation of generating units. GOs should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components. The SDT also felt it is appropriate to specifically exclude components that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner would not constitute a freezing condition in the context of this Standard, and therefore, these lines would not be considered a Generator Cold Weather Critical Component.

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement, but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Key Recommendation 1d: To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather *preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or*

failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a ~~CAP~~Corrective Action Plan (CAP) for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, ~~and~~or freezing rain) on equipment. The SDT felt that it was important to clearly call out freezing precipitation as these events were included in the outages and derates that identified as freezing in the Joint Inquiry Report. Furthermore, Key Recommendation 1c of the report requires GOs to account for the effect of precipitation. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is ~~to~~ a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. Also excluded are proactive operational actions to limit the potential of forced outages or derates. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs). From the GADS data reporting instructions, the startup period for each unit is determined by the operating company. It is unique for each unit and depends on the condition of the unit at the time of startup (cold, warm, ~~and~~or hot). A typical unit startup occurs in three phases: warm up, synchronization, and ramp up. NERC defines a startup period to begin with the command to start and end when the unit is synchronized. A Startup Failure begins when a problem preventing the unit from synchronizing occurs. The Startup failure ends when the unit is synchronized, another Startup Failure occurs, or the unit enters another permissible state.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience

- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement

- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint

Any condition that would preclude a Generator Owner~~, using good utility practice,~~ from implementing freeze protection measures on one or more Generator Cold Weather Critical Components~~.~~ using the criteria below. Freeze protection measures are not intended to refer to optimum practices, methods, or technologies, but rather to be acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision was made:

- *Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;*
- *Could not have been expected to accomplish the desired result; or*
- *Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.*

The SDT reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. ~~The SDT relied upon "good utility practice" which has a common understanding as used in the *pro forma* OATT as:~~The SDT relied upon the industry's long practice of using "good utility practice" as a basis for implementing new practices, methods, or technologies and as such developed a definition that largely built upon this language and approach. The SDT also ensured that constraint language would be fully captured within the standard itself and was customized to the freeze protection measures that will be implemented as part of this standard.

~~*Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4).*~~

The following non-comprehensive list contains examples that may, depending on the circumstances, constitute a Generator Cold Weather Constraint(s):

- Warranties that would be voided by application of a freeze protection measure
- Accelerated retirement of an existing generating unit
- Cancellation of new generating unit(s)
- Reduction in summer capability

- Introduces an increased personnel or safety risk
- Introduces a risk of noncompliance with environmental regulations
- Compromised ability to provide ancillary services
- Technology not utilized by a significant portion of the electric utility industry

Ultimately, it will be the GO’s responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented. A declaration that no further corrective actions will be taken is expected to be used sparingly.

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard. Furthermore, the SDT wants to ensure that the standard language supports the adoption of new freeze protection practices, methods, or technologies while not immediately requiring a new freeze protection practice, method, or technology to be implemented industry-wide when a leading utility pilots a novel approach, as this would be a disincentive to utilities piloting new technologies. The SDT encourages additional studying of freeze protection measures to remove constraints as appropriate over time.

Facilities

4.1. Facilities:

4.1.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following BES resources:

4.1.1.1. A BES generating resource identified in the BES definition, Inclusion I2 and I4; or

4.1.1.2. A Blackstart Resource, identified in the BES definition, Inclusion I3.

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines “generating unit” as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator’s restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

1.1. *Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and*

1.1.1. *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.*

1.2. *Identify generating unit(s) cold weather data, to include:*

1.2.1. *Generating unit(s) operating limitations in cold weather to include:*

1.2.1.1. *Capability and availability;*

1.2.1.2. *Fuel supply and inventory concerns;*

1.2.1.3. *Start-up issues;~~Fuel switching capabilities; and~~*

1.2.1.4. *Fuel switching capabilities; and*

1.2.1.5. *Environmental constraints.*

1.2.2. *Generating unit(s) minimum:*

- *Design temperature, and if available, the concurrent wind speed and precipitation;*
- *Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or*
- *Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003-5 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and

precipitation. Consideration of wind and precipitation, along with the minimum temperature, ~~provide~~provides a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual future cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),~~[1]~~[7] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or*
- *Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report[8] suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, ~~2024~~2027). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

GOs with generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then must implement the CAP according to R7. In addition, it is recognized that Generator Cold Weather

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~~[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.~~

[7] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[8] sw-task-force-cover-new2.psd (nerc.com)

Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.4, the option for the GO to make a declaration supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter inmost regions of the US and Canada. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather ~~condition.~~
conditions.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, ~~2024~~2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[9] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or*
- *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.*

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3 ~~as to not create an unreasonable compliance obligation.~~. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

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[9] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

- ***4.1*** *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*
- ***4.2*** *The generating unit cold weather data, as determined in Part 1.2;*
- ***4.3*** *Documentation identifying Generator Cold Weather Critical Components;*
- ***4.4*** *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*
- ***4.5*** *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2, and is intended to be used and reviewed regularly by the GO. R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012-2, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003-5 and IRO-~~01~~010-4. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The ~~document~~NERC *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[10], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[10] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

R5. *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an "annual" basis. The Joint Inquiry Report explains "Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area."[11] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word "annual" to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The training shall be provided to operational personnel who are responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. The operational personnel includes employees of the Registered Entity as well as any dedicated on-site full-time contractors or equipment OEM personnel responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. Vendors who perform inspection, maintenance, or installation of freeze protection measures prior to the winter season do not need to receive the training on the cold weather preparedness plan.

The training for personnel shall include instructions on actions taken to prepare the generating unit(s) for cold weather operations prior to the cold weather season as well as on actions taken when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, review of special inspections or rounds implemented during severe weather, fuel switching procedures, and maintenance of freeze protection measures, etc.

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[11] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[12] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*

6.2. *A review of applicability to similar equipment at generating units owned by the Generator Owner; and*

6.3. *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.*

<u>Key Recommendation 1d:</u> *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.*

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads "A list of actions and an associated timetable for implementation to remedy a specific problem." As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

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[12] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the RTO's.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site's ECWT. By using the site's ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that ~~Generators~~GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. *Include a timetable for implementing the selected corrective action(s) that shall:*

7.1.1. *List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;*

7.1.2. *List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and*

7.1.3. *List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; ~~and~~*

~~*7.1.4. For one or more Corrective Action Plan(s) that address multiple units in a fleet, the Corrective Action Plan shall stagger implementation across those generating units.*~~

7.2. *Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;*

7.3. *Update the Corrective Action Plan, with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and*

7.4. *Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing ~~actions~~selected action(s) contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. At the same time, the SDT recognizes that the following limitations make the 24 and 48 calendar months maximum timelines reasonable: scoping applicability to similar units, freeze protection engineering and design, project development, annual budgeting process, material supply lead times, outage scheduling, skilled labor availability, and startup/commissioning. Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future. The SDT added part 7.1.3. for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues. In establishing these timeframes, the SDT considered the FERC directives, and that NERC include a timeframe for completion for CAPs, shorten the implementation plans, and that NERC stagger Implementation Plans to have more generation compliant faster. The SDT considered a staggered timeframe both in the standard and IP but determined that more aggressive completion time frames, combined with a shorter implementation plan, would serve the reliability goal to have generating units operating at the ECWT with less administrative burden that could be associated with proving compliance with a staggered implementation plan fleet wide. There is not specific staggering within the 24- or 48-month completing time frames because of industry concern about additional complications of completing work efficiently. There will be some natural staggering due to unit outages and personnel availability as an example.

~~The SDT introduced part 7.1.4. requiring GOs to stagger implementation of their corrective action plans to ensure that they are proactively implementing freeze protection measures and not utilizing the 24 and 48 calendar month timeframes as a basis to not proactively implement freeze protection measures when possible. The SDT understands that outage, equipment, and labor availability will naturally lead to some level of staggering, but wanted to explicitly indicate that this was an expected requirement as well.~~

Requirement R7

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. GOs that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

If one or more actions within a CAP fall under a declaration, it is the intent of the SDT that only those selected actions would not be implemented as part of the CAP. The remaining actions should be implemented.

Requirement R8

R8. *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1 *~~Perform an annual review and update~~Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed~~; and~~ when a change of status to the Generator Cold Weather Constraint occurs; and*

8.2 *Update the operating limitations associated with capability and availability ~~per~~under Requirement R1 Part 1.2 if applicable.*

In the FERC order, the Commission expressed concern that a GO may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT~~[13].~~.[1] An additional concern was that the constraint declarations may be used by a functional entity as an opt-out of compliance set forth in the standards or a corrective action plan.~~[14]~~[2] To mitigate the concern, the Commission directed NERC to work with Commission staff and submit a data collection and assessment plan that contains information related to GO constraint declarations and explanations thereof.~~[15]~~[3] The SDT expects that ERO compliance staff will be the entity responsible for reviewing declared constraints and assessing compliance with the constraint definition criteria in accordance with established processes.

~~The SDT developed R8 to require the GO to perform an annual review and update any constraint declarations as needed.~~ The SDT developed R8 to require the GO to perform a review and update any constraint declarations as needed. The SDT believes that constraints will be the exception. When GO's experience a constraint such that they need to take a declaration the SDT believes the limiting factor causing the constraints will not change quickly and as such a 5-year review is the appropriate time. While the SDT implemented a 5-year maximum time frame to review, it is the SDTs intent that the GO's will be cognizant of their Cold Weather Constraints and will proactively remove these constraints where warranted. For instance, if a unit is slated for retirement and this status changes, it is the expectation of the SDT that the GO will review constraints based upon this impending retirement and will no longer take this constraint for future CAPs that may require the implementation of freeze protection measures on this unit given that it is no longer slated for retirement.

Updated constraint declarations would also require an update to the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003-5 and IRO-010~~.~~-4.

~~[13] FERC Order, 182 FERC ¶ 61,094 at P 64.~~

[1] FERC Order, 182 FERC ¶ 61,094 at P 64.

~~[14] Id. At P 66.~~

[2] Id. At P 66.

~~[15] See id at PP 11, 68, 94-95.~~

[3] See id at PP 11, 68, 94-95.

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Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Formal Comment Period Open through January 22, 2024

Now Available

A 13-day formal comment period for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2,** is open through **8 p.m. Eastern, Monday, January 22, 2024** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

The standard drafting team's considerations of the responses received from the previous comment period are reflected in this draft of the standard.

Reminder Regarding Corporate RBB Memberships

Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact ballotadmin@nerc.net to assist with the removal of any duplicate registrations.

Commenting

Use the Standards Balloting and Commenting System (SBS) to submit comments. An unofficial Word version of the comment form is posted on the project page.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*
- *Please be mindful of ballot and comment period closing dates. We ask to **allow at least 48 hours** for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts **prior to the last day** of a comment/ballot period.*

Next Steps

Additional ballots for the standard and implementation plan, and non-binding poll of the associated Violation Risk Factors and Violation Severity Levels, will be conducted **January 16 - 22, 2024**.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination observer list” in the Description Box.

North American Electric Reliability Corporation
3353 Peachtree Rd, NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

Comment Report

Project Name:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Draft 3 EOP-012-2
Comment Period Start Date:	1/10/2024
Comment Period End Date:	1/22/2024
Associated Ballots:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll AB 3 NB 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 AB 3 ST 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 AB 3 OT

There were 63 sets of responses, including comments from approximately 175 different people from approximately 118 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

2. As opposed to staggering, the SDT chose to shorten the time frame in the implementation plan for the standard as a whole. The SDT responded to industry comments with concerns that staggering did not need to be explicitly required as this will happen naturally due to outage scheduled and resource availability. Do you agree with this approach?

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

3. Based on industry comments that constraints are expected to be rare and the conditions that drive them will not change frequently, the SDT moved from an annual to a 5-year review. Do you agree with this change?

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

4. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. After reviewing the comments on the previous posting, the team determined to not change the timeframe in the posted implementation plan for reasons explained in the Consideration of Comments. If you have any further comments, please provide them here.

5. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

6. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
BC Hydro and Power Authority	Adrian Andreoiu	1	WECC	BC Hydro	Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
MRO	Anna Martinson	1,2,3,4,5,6	MRO	MRO Group	Shonda McCain	Omaha Public Power District (OPPD)	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
					Jay Sethi	Manitoba Hydro (MH)	1,3,5,6	MRO
					Husam Al-Hadidi	Manitoba Hydro (System Preformance)	1,3,5,6	MRO
					Kimberly Bentley	Western Area Power Adminstration	1,6	MRO
					Jaimin Patal	Saskatchewan Power Coporation (SPC)	1	MRO
					Angela Wheat	Southwestern Power Administration	1	MRO
					George Brown	Pattern Operators LP	5	MRO
					Larry Heckert	Alliant Energy (ALTE)	4	MRO
					Terry Harbour	MidAmerican Energy Company (MEC)	1,3	MRO
					Dane Rogers	Oklahoma Gas and Electric (OG&E)	1,3,5,6	MRO

					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
					Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Michael Ayotte	ITC Holdings	1	MRO
					Andrew Coffelt	Board of Public Utilities-Kansas (BPU)	1,3,5,6	MRO
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF
					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
Southern Company - Southern Company Services, Inc.	Colby Galloway	1,3,5,6	MRO,RF,SERC,Texas RE,WECC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					Leslie Burke	Southern Company - Southern Company Generation	5	SERC
Dane Rogers	Dane Rogers			OG&E	Terri Pyle	OGE Energy - Oklahoma Gas and Electric Co.	1	MRO
					Donald Hargrove	OGE Energy - Oklahoma Gas and Electric Co.	3	MRO
					Patrick Wells	OGE Energy - Oklahoma Gas and Electric Co.	5	MRO

					Ashley F Stringer	OGE Energy - Oklahoma Gas and Electric Co.	6	MRO
Santee Cooper	Don Cribb	5		Santee Cooper	Paul Camilletti	Santee Cooper	1,3,5,6	SERC
					Domenic Ciccolella	Santee Cooper	1,3,5,6	SERC
ACES Power Marketing	Jodirah Green	1,3,4,5	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Scott Brame	North Carolina Electric Membership Corporation	3,4,5	SERC
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Amber Skillern	East Kentucky Power Cooperative	1	SERC
					Nick Fogleman	Prairie Power, Inc.	1,3	SERC
					Austin Towne	Western Farmers Electric Cooperative	1,5	Texas RE
					Scott Berry	Wabash Valley Power Association	3	RF
					Jordan Mcclellan	Southern Illinois Power Cooperative	1	SERC
Entergy	Julie Hall	6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC
Electric Reliability Council of Texas, Inc.	Kennedy Meier	2		ISO/RTO Council Standards Review Committee (SRC)	Bobbi Welch	Midcontinent ISO, Inc.	2	RF
					Darcy O'Connell	California ISO	2	WECC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Kennedy Meier	Electric Reliability	2	Texas RE

						Council of Texas, Inc.		
					Joshua Phillips	Southwest Power Pool, Inc. (RTO)	2	MRO
					Thomas Foster	PJM Interconnection, L.L.C.	2	RF
					Helen Lainis	Independent Electricity System Operator	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy- FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Michael Johnson	Michael Johnson		WECC	PG&E All Segments	Marco Rios	Pacific Gas and Electric Company	1	WECC
					Sandra Ellis	Pacific Gas and Electric Company	3	WECC
					Frank Lee	Pacific Gas and Electric Company	5	WECC
Black Hills Corporation	Rachel Schuldt	6		Black Hills Corporation - All Segments	Micah Runner	Black Hills Corporation	1	WECC
					Josh Combs	Black Hills Corporation	3	WECC
					Rachel Schuldt	Black Hills Corporation	6	WECC
					Carly Miller	Black Hills Corporation	5	WECC

Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC
					Jeffrey Streifling	NB Power Corporation	1	NPCC
					Michele Tondalo	United Illuminating Co.	1	NPCC
					Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
					Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
					Randy Buswell	Vermont Electric Power Company	1	NPCC
					James Grant	NYISO	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
					Randy MacDonald	New Brunswick Power Corporation	2	NPCC
					Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
					David Burke	Orange and Rockland	3	NPCC
					Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
					Salvatore Spagnolo	New York Power Authority	1	NPCC
					Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC

					David Kwan	Ontario Power Generation	4	NPCC
					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Sean Cavote	PSEG	4	NPCC
					Jason Chandler	Con Edison	5	NPCC
					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					Joshua London	Eversource Energy	1	NPCC
Western Electricity Coordinating Council	Steven Rueckert	10		WECC Entity Monitoring	Steve Rueckert	WECC	10	WECC
					Phil O'Donnell	WECC	10	WECC
Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC
					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of	1	WECC

						Northern California		
Associated Electric Cooperative, Inc.	Todd Bennett	3		AECI	Michael Bax	Central Electric Power Cooperative (Missouri)	1	SERC
					Adam Weber	Central Electric Power Cooperative (Missouri)	3	SERC
					Gary Dollins	M and A Electric Power Cooperative	3	SERC
					William Price	M and A Electric Power Cooperative	1	SERC
					Olivia Olson	Sho-Me Power Electric Cooperative	1	SERC
					Mark Ramsey	N.W. Electric Power Cooperative, Inc.	1	SERC
					Heath Henry	NW Electric Power Cooperative, Inc.	3	SERC
					Tony Gott	KAMO Electric Cooperative	3	SERC
					Micah Breedlove	KAMO Electric Cooperative	1	SERC
					Brett Douglas	Northeast Missouri Electric Power Cooperative	1	SERC
					Skyler Wiegmann	Northeast Missouri Electric Power Cooperative	3	SERC
					Mark Riley	Associated Electric Cooperative, Inc.	1	SERC
					Brian Ackermann	Associated Electric Cooperative, Inc.	6	SERC

					Chuck Booth	Associated Electric Cooperative, Inc.	5	SERC
					Jarrod Murdaugh	Sho-Me Power Electric Cooperative	3	SERC

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1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

Kimberly Turco - Constellation - 6

Answer

Document Name

Comment

Constellation has no additional comments.

Kimberly Turco on behalf on Constellation segements 5 and 6

Likes 0

Dislikes 0

Response

Alison MacKellar - Constellation - 5

Answer

Document Name

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

James Keele - Entergy - 3

Answer

Document Name

Comment

Paragraph 88 directed NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet. Such an approach will reduce reliability risks more quickly.

Likes 0

Dislikes 0

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer

Document Name

Comment

FirstEnergy supports this change to the proposed definition of Generator Cold Weather Constraint.

Likes 0

Dislikes 0

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer

Document Name

Comment

None.

Likes 0

Dislikes 0

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer

Document Name

Comment

Avista & EEI agree the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.

Likes 0

Dislikes 0

Response

Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E

Answer

Document Name

Comment

OG&E supports comments submitted by MRO NSRF.

Likes 0

Dislikes 0

Response

Andrew Smith - APS - Arizona Public Service Co. - 5

Answer

Document Name

Comment

AZPS has no additional comments.

Likes 0

Dislikes 0

Response

Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments

Answer

Document Name

Comment

Black Hills Corporation supports NAGF comments, specifically regarding consistency in auditing as this requirement is not easily “measurable”.

Likes 0

Dislikes 0

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer

Document Name

Comment

MRO NSRF agrees that the revised definition provides sufficient clarity and is auditable.

Likes 0

Dislikes 0

Response

Robert Follini - Avista - Avista Corporation - 3

Answer

Document Name

Comment

Avista & EEI agree the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.

Likes 0

Dislikes 0

Response

Larry Heckert - Alliant Energy Corporation Services, Inc. - 4

Answer

Document Name

Comment

Alliant Energy supports the comments submitted by the MRO NSRF.

Likes 0

Dislikes 0

Response

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer

Document Name

Comment

NRG believes the changes generally address the issues raised by industry. NRG agrees with NAGF that there is still the potential for varying interpretation across regions. NERC will need to ensure that the regions are all applying the standard consistently across the continent.

Likes 0

Dislikes 0

Response

Patricia Lynch - NRG - NRG Energy, Inc. - 5

Answer

Document Name

Comment

NRG believes the changes generally address the issues raised by industry. NRG agrees with NAGF that there is still the potential for varying interpretation across regions. NERC will need to ensure that the regions are all applying the standard consistently across the continent.

Likes 0

Dislikes 0

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer

Document Name

Comment

PG&E agrees with the revised definition and supports NAGF comments regarding implementation of this definition.

Likes 0

Dislikes 0

Response

Megan Melham - Decatur Energy Center LLC - 5

Answer

Document Name

Comment

We believe the changes made address the issues raised by industry. However, there is still a great deal of potential interpretation. NERC will need to ensure that the regions are all implementing the audit process consistently across the nation. There are already issues arising due to auditors not interpreting areas of EOP-011 consistently. While this issue is not specific to EOP-011 or the future EOP-012, NERC must address the issue as it related to these standards if we are going to continue to develop standards quickly instead of taking the time necessary to address areas where the “measurement” is not a simple equation.

Likes 0

Dislikes 0

Response

Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

Southern agrees with EEI’s comments such that the current draft is reasonable and provides sufficient clarity for audibility.

Likes 0

Dislikes 0

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer

Document Name

Comment

The NAGF believes the changes made address the issues raised by industry. However, there is still a great deal of potential interpretation. NERC will need to ensure that the regions are all implementing the audit process consistently across the nation. There are already issues arising due to auditors not interpreting areas of EOP-011 consistently. While this issue is not specific to EOP-011 or the future EOP-012, NERC must address the issue as it related to these standards if we are going to continue to develop standards quickly instead of taking the time necessary to address areas where the "measurement" is not a simple equation.

Likes 0

Dislikes 0

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer

Document Name

Comment

Per North American Generator Forum comments, auditors will need guidance to enforce EOP-012 in a consistent manner.

Likes 0

Dislikes 0

Response

Srinivas Kappagantula - Arevon Energy - 5

Answer

Document Name

Comment

Arevon agrees with NAGF Comments. The changes made address the issues raised by industry. However, there is still remains a great deal of potential interpretation. NERC will need to ensure that the regions are implementing the audit process consistently across the nation. There are already issues with auditors' inconsistent interpretations of EOP-011. While this issue is not specific to EOP-011 or the future EOP-012, NERC must address the issue as it related to these standards if we are going to continue to develop standards quickly instead of taking the time necessary to address areas where the "measurement" is not a simple equation.

Likes 0

Dislikes 0

Response

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer

Document Name

Comment

EEI agrees the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.

Likes 0

Dislikes 0

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer

Document Name

Comment

NV Energy agrees that the revised definition provides sufficient clarity and is auditable.

Likes 0

Dislikes 0

Response

C. A. Campbell - LS Power Development, LLC - 5

Answer

Document Name

Comment

LS Power Development supports the NAGF comments & positions.

Likes 0

Dislikes 0

Response

Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6

Answer

Document Name

Comment

“See comments submitted by the Edison Electric Institute” EEI agrees the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.

Likes 0

Dislikes 0

Response

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Thomas Foltz - AEP - 5

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Julie Hall - Entergy - 6, Group Name Entergy

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Richard Vendetti - NextEra Energy - 5

Answer

Document Name

Comment

Likes 0
Dislikes 0
Response
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez
Answer
Document Name
Comment
Likes 0
Dislikes 0
Response
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO
Answer
Document Name
Comment
Likes 0
Dislikes 0
Response
Richard Jackson - U.S. Bureau of Reclamation - 1
Answer
Document Name
Comment
Likes 0
Dislikes 0
Response

Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Hillary Creurer - Allete - Minnesota Power, Inc. - 1

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Teresa Krabe - Lower Colorado River Authority - 5

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Rhonda Jones - Invenergy LLC - 5,6

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Colin Chilcoat - Invenergy LLC - 6

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer

Document Name

Comment

Likes 0

Dislikes 0

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer

Document Name

Comment

Texas RE is concerned the phrase “acceptable practices, methods, or technologies” is vague and could lead to inconsistent application of the definition of Generator Cold Weather Constraint.

Likes 0

Dislikes 0

Response

Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro

Answer

Document Name

Comment

BC Hydro appreciates the drafting team’s efforts to include specific criteria to define the Generator Cold Weather Constraint, and believes that it is an improvement from the previous draft. The use of words such as “generally”, “broadly”, “may”, or “reasonable” however may not be conducive to measurable expectations at audit.

BC Hydro suggests that the second sentence in the third bullet (“A cost may be deemed “unreasonable” when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.”) is an example that would be better suited in the Technical Rationale or other guidance document rather than definition itself

Likes 0

Dislikes 0

Response

Romel Aquino - Edison International - Southern California Edison Company - 1,3,5,6

Answer

Document Name

Comment

See comments submitted by the Edison Electric Institute

Likes 0

Dislikes 0

Response

Donald Lock - Talen Generation, LLC - 5

Answer

Document Name

Comment

The criterion, “Were not broadly implemented,” may disincentivize the development and adoption of emerging winterization technologies, despite the statement in the Technical Justification that the SDT has the opposite intention.

The expression, “reasonable cost consistent with good business practices,” can be widely interpreted, including as deeming all existing plants to be acceptable since they were winterized per the cost-effectiveness business practices of the owner. If good business practices is intended to mean something different it will have to be spelled-out.

Rather than continue to adjust semantics, however, the appropriate path forward is to set explicit winterization criteria for new facilities, update this list as new technologies become proven, and urge FERC to support reimbursement of owners of existing plants for retrofits to avoid freeze-up. The only mandatory action for existing plants should be to identify the dry bulb temperature, wind chill temperature and precipitation conditions under which forced outages and derates may occur, so that ISOs can determine the appropriateness of funding retrofits in their areas.

The historical records necessary for identifying the proven wind chill capability of a plant are easily obtained. Just download DBT and wind speed readings when pulling ECWT data from the NOAA website, then add a column for applying the wind chill formula.

Above all else, good business practices require that winterization capabilities mandated in EOP-012 must be done right the first time, nor should the goalposts move about over the years, ref. our responses for Question 5 below.

Likes 0

Dislikes 0

Response

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI

Answer

Document Name

Comment

AECI supports comments submitted by ACES.

Likes 0

Dislikes 0

Response

Ruchi Shah - AES - AES Corporation - 5

Answer

Document Name

Comment

AES Clean Energy supports the comments provided by NAGF. While AES Clean Energy appreciates the improvements made by the drafting team on the definition, there remains opportunities for potential interpretations by ERO CMEP staff. As stated by NAGF, GOs and GOPs currently are experiencing inconsistent interpretations of EOP-011-2 requirements during CMEP engagements across the United States. This revised definition of Generator Cold Weather Constraints may create mis-alignment between industry's interpretation of reliability as opposed to reliability expectations by the ERO CMEP Staff.

There is also lack of understanding from the Regional Entities on renewable generation resources and application of the Standard requirements to these resources. We strongly recommend that NERC develops an implementation guidance with industry trade groups or create a CMEP Practice Guide that reflects the expectations by both industry and ERO CMEP staff during CMEP engagements with industry stakeholders.

Likes 0

Dislikes 0

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer

Document Name

Comment

AEPC has signed on to ACES comments:

We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however, we have grave concerns with the currently proposed definition of “Generator Cold Weather Constraint”. It is our opinion that the proposed language lacks objective auditable criteria. We believe that, as written, the proposed definition contains several undefined terms and phrases that are not auditable without further definition and/or clarification. We take specific issue with the following words and phrases contained within the definition:

- “reasonable”
  - We have great uneasiness with the repeated use of the word “reasonable”. We fear that the use of this word in a NERC Reliability Standard will potentially lead to inconsistent application throughout the various NERC regions. For instance, who is the responsible party that will determine whether something is “reasonable” or not? Should it be up to the discretion of each individual auditor to make a determination as to what is or is not “reasonable”? While the phrase “reasonable” may have some precedent in a court of law, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME’s may not be, nor are expected to be, lawyers. Thus, we recommend removing this word altogether.
- “broadly implemented”
  - What is the objective metric that will be used to determine which practices, methods, or technologies have been “broadly implemented”? Will NERC maintain a list of all freeze protection measures implemented at all generating stations and if so, what is the threshold whereby any given freeze protection measure will be considered “broadly implemented”?
- “regions that experience similar winter climate conditions”
  - How, and by whom, will a boundary be determined for the various so-called “regions”? Additionally, what is the metric for determining what constitutes “similar winter climate conditions”? It is our understanding that part of the basis for utilizing a statistical model for the “Extreme Cold Weather Temperature” definition was to provide clarity to the Generator Owner on determining what temperature triggers the requirement obligations. Furthermore, it is our understanding that this statistical approach was utilized as each generating station may very well experience unique winter climate conditions. In light of this well-reasoned statistical approach, we find it perplexing that such a subjective metric was utilized for this criteria of “Generator Cold Weather Constraint”.
- “prohibitively expensive” and “significant expenditures”

- While we appreciate the attempt made by the SDT to provide clarification on this matter, we have apprehension with these phrases because there is no objectively defined threshold for determining when costs are to be considered “unreasonable”. For example, a large investor-owned utility (“IOU”) has substantially more resources than a small electric cooperative. What may be a relatively minor expenditure to one could be “prohibitively expensive” or a “significant expenditure” to the other. We recommend that this criteria be modified to include a fixed metric utilizing a defined cost threshold. It is our opinion that this can best be expressed as a percentage of annual Operation and Maintenance (“O&M”) costs during the meteorological winter months.

We recommend using the following language:

Generator Cold Weather Constraint - Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using one or more of the criteria below:

- Warranties that would be voided by application of a freeze protection measure(s).
- Reduction in summer capability.
- Decreases the reliability of the unit(s).
- Introduces an increased personnel or safety risk.
- Introduces a risk of noncompliance with environmental regulation(s).
- Compromised ability to provide ancillary service(s)
- No known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technology(ies), or existing technology(ies) in a new application(s).
- The cost to implement a new, or modify an existing, freeze protection measure(s) exceeds five percent (5%) of the generating station’s most recent 5-year average Operation and Maintenance (“O&M”) costs during meteorological winter months.

Likes 0

Dislikes 0

Response

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer

Document Name

Comment

PNM would recommend removing the first criteria bullet point “Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy” as it contradicts the second and third bullet point in the EOP-012-2 standard.

Likes 0

Dislikes 0

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer

Document Name

Comment

WECC understands the need to expeditiously complete this project, and therefore will be casting an affirmative vote. We do not to have perfect get in the way of good. However, WECC still has some suggestions that would improve the standard and therefore provides the following for the drafting team to consider, either now or in the future if the standard is revisited.

The criteria provided are broad and may very well be implemented inconsistently. Items that will be a constant question by industry to the ERO Enterprise will be similar in nature to the followingis considered prohibitively expensive modifications? Significant expenditures? Minimal remaining life?

Perhaps Implementation Guidance can be generated that clearly illustrates the intent of the SDT. Industry should not be asking <span style="user-select: text;-webkit-use
svg+xml;base64,pd94bwwgdmvyc2lvbj0ims4wiiblbmnvzgluzz0ivvrgltgipz4kphn2zyb3awr0ad0inxb4iibozwlnahq9ijnwecigdmlld0jved0imcawidugmyigdmvyc2lvbj0ims4xiib4
0chm6ly9za2v0y2hhchauy29tic0tpgogicagphrpdgxlpmdyyw1tyxjfzg91ymxlx2xpbmu8l3rpdgxlpgogicagpgrlc2m+q3jlyxrlzcb3axroifnrzxrjac48l2rlc2m+ciagica8zybpzd0iz3jh
xllunvchkiihn0cm9rzt0iizmzntvgrii+ciagicagicagicagidxwyxroigq9ik0wldaunsbmnswwljuiiglkpsjmaw5lltitq29wes0xmci+pc9wyxropgogicagicagicagica8cgf0acbkpsjnmcwylju
y:100%'="">the ERO Enterprise what they consider the above terms mean. As is, the auditing of these details will result in no meaningful result outside of freeze protection measures not being implemented based on criteria that will be used inconsistently by Generator Owners. If the language remains, a Generator Owner will need to support each Generator Cold Weather Constraint with what they considered as criteria which, per FERC, will be submitted to FERC in some fashion.

Likes 0

Dislikes 0

Response

Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano

Answer

Document Name

Comment

We agree with some comments provided by ACES, AEPC, and Talen but are not going to restate each item specifically.

Likes 1

Dislikes 0

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer

Document Name

Comment

Proposed language is still open to audit interpretation (insufficient clarity due to undefined terms).

Likes 0

Dislikes 0

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer

Document Name

Comment

We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however, we have grave concerns with the currently proposed definition of "Generator Cold Weather Constraint". It is our opinion that the proposed language lacks objective auditable criteria. We believe that, as writen, the proposed definition contains several undefined terms and phrases that are not auditable without further definition and/or clarification. We take specific issue with the following words and phrases contained within the definition:

- "reasonable"
    - We have great uneasiness with the repeated use of the word "reasonable". We fear that the use of this word in a NERC Reliability Standard will potentially lead to inconsistent application throughout the various NERC regions. For instance, who is the responsible party that will determine whether something is "reasonable" or not? Should it be up to the discretion of each individual auditor to make a determination as to what is or is not "reasonable"?
    - While the phrase "reasonable" may have some precedent in a court of law, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME's may not be, nor are expected to be, lawyers. Thus, we recommend removing this word altogether.

- "broadly implemented"
    - What is the objectve metric that will be used to determine which practices, methods, or technologies have been "broadly implemented"? Will NERC maintain a list of all freeze protection measures implemented at all generating stations and if so, what is the threshold whereby any given freeze protection measure will be considered "broadly implemented"?

- "regions that experience similar winter climate conditions"

    - How, and by whom, will a boundary be determined for the various so-called "regions"? Additionally, what is the metric for determining what constitutes "similar winter climate conditions"? It is our understanding that part of the basis for utilizing a statistical model for the "Extreme Cold Weather Temperature" definition was to provide clarity to the Generator Owner on determining what temperature triggers the requirement obligations. Furthermore, it is our understanding that this statistical approach was utilized as each generating station may very well experience unique winter climate conditions. In light of this well-reasoned statistical approach, we find it perplexing that such a subjective metric was utilized for this criteria of "Generator Cold Weather Constraint".

- "prohibitively expensive" and "significant expenditures"
    - While we appreciate the attempt made by the SDT to provide clarification on this matter, we have apprehension with these phrases because there is no objectively defined threshold for determining when costs are to be considered "unreasonable". For example, a large investor-owned utility ("IOU") has substantially more resources than a small electric cooperative. What may be a relatively minor expenditure to one could be "prohibitively expensive" or a "significant expenditure" to the other. We recommend that this criteria be modified to include a fixed metric utilizing a defined cost threshold. It is our opinion that this can best be expressed as a percentage of annual Operation and Maintenance ("O&M") costs during the meteorological winter months.

We recommend using the following language:

Generator Cold Weather Constraint - Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using one or more of the criteria below:

- Warranties that would be voided by application of a freeze protection measure(s).
- Reduction in summer capability.
- Decreases the reliability of the unit(s).
- Introduces an increased personnel or safety risk.
- Introduces a risk of noncompliance with environmental regulation(s).
- Compromised ability to provide ancillary service(s)
- No known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technology(ies), or existing technology(ies) in a new application(s).
- The cost to implement a new, or modify an existing, freeze protection measure(s) exceeds five percent (5%) of the generating station's most recent 5-year average Operation and Maintenance ("O&M") costs during meteorological winter months.

Likes 0

Dislikes 0

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer

Document Name

Comment

The **ISO/RTO Council (IRC) Standards Review Committee (SRC)** (consisting, for purposes of these comments, of CAISO, ERCOT, IESO, ISO-NE, PJM, MISO, NYISO, and SPP) does not believe that the revised **Generator Cold Weather Constraint (GCWC)** definition is sufficiently clear or auditable. Specifically, the SRC is concerned that the language regarding freeze protection measures is faulty, that the reference to "the decision" in the definition is uncle
unreasonable costs is inherently subjective and unauditable. The SRC therefore believes that the revised GCWC definition does not fully meet FERC's directive that EOP-012-2 "include auditable criteria on permissible constraints," as stated in paragraph 66 of FERC's February 16, 2023 Order.

It is the SRC's understanding that the intent of the phrase "[f]reeze protection measures are not intended to refer to optimum practices, methods, or technologies" is to avoid placing an undue burden on Generator Owners by indicating that they are not obligated to implement novel and untested freeze protection measures that may ultimately prove to be ineffective. Unfortunately, this language does not convey this intent and could be understood to mean that optimum practices *never* qualify as freeze protection measures, which seems to run counter to the overall project goal of improving generator preparations for extreme cold weather events.

The SRC further understands that the SDT's intent is to model this portion of the GCWC definition on the definition of Good Utility Practice found in section 1.15 of FERC's Pro Forma Open Access Transmission Tariff (OATT). However, the SDT's proposed GCWC definition does not fully match the corresponding language in the OATT, which reads in pertinent part as follows: "Good Utility Practice is not intended *to be limited to* the optimum practice, method, or act *to the exclusion of all others*, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4)" (emphasis added). If the SDT intends to model the GCWC definition on the OATT definition, the SRC recommends that the GCWC definition be revised to more accurately capture the drafting team's intent by better aligning it with the language used in the Pro Forma OATT as follows: "Freeze protection measure are not intended to **be limited** to optimum practices, methods, or technologies **to the exclusion of all others**, but **are also intended to include** acceptable practices, methods, or technologies . . . ." The SRC notes that as an alternative, the drafting team could remove the reference to "optimum practices, methods, or technologies" altogether, which would more clearly indicate that "acceptable practices, methods, and technologies . . ." is the core of the definition.

The SRC is also concerned that the reference to "acceptable practices, methods, or technologies **generally implemented** by the electric industry in areas that experience similar winter climate conditions" (emphasis added) does not provide an objective standard that can be effectively audited and fails to account for the real-world effectiveness (or lack thereof) of the freeze protection measures implemented, which is inappropriate for a standard designed to address weatherization failures. In addition, the SRC is concerned that this definition does not provide sufficient guidance on how widely a freeze protection technology must be deployed before it will be considered a "generally implemented" technology. Given the typical pace of change within the electric utility industry, it may take years for a new technology to be adopted widely enough to be considered "generally implemented." The SRC is concerned that this, coupled with the five-year review period for GCWC declarations (as further detailed in the SRC's response to question 3 below), will serve to delay and disincentivize the adoption of effective freeze protection technologies that happen to be new. To address these concerns, the SRC recommends that this language be revised to read "practices, methods, or technologies **that would reasonably be expected to result in effective facility performance while operating at the Extreme Cold Weather Temperature (ECWT)**."

Next, the definition currently references "the facts known at the time the decision was made." It is the SRC's understanding that the decision referred to is the decision to declare a GCWC. However, the language as currently drafted could also be construed to refer to decisions made at the time a generation facility was designed, constructed, or commissioned. Therefore, the SRC recommends that this portion of the definition be clarified by revising it to read "the facts known at the time the decision **to declare a Generator Cold Weather Constraint** was made . . . ."

Finally, the SRC is concerned that the reasonable cost criteria for determining whether a cost-based GCWC can be declared are subjective and unauditable. Interpretation of the proposed reasonable cost criteria is likely to vary widely from entity to entity and from region to region, as a merchant generator and a rate-regulated investor-owned vertically integrated utility are likely to arrive at very different conclusions regarding what constitutes a "prohibitively expensive modification," a "significant expenditure," or "minimal remaining life" given the differing regulatory regimes and obligations applicable to each type of entity. The definition also lacks guidance that auditors can apply uniformly and consistently when confronted with differing interpretations in the course of reviewing GCWC declarations. The SRC therefore believes the proposed reasonable cost criteria for determining whether a GCWC can be declared do not address FERC's concerns regarding the ambiguity of constraint declarations, as discussed in paragraph 6 of FERC's February 16, 2023 Order.

This inherent subjectivity would effectively allow Generator Owners to declare a GCWC simply by asserting that implementing a given freeze protection measure would constitute a "prohibitively expensive modification[]" or a "significant expenditure[]," and that the affected facility has "minimal remaining life." This, combined with the auditability challenges discussed in the preceding paragraph, means that GCWCs could easily be used excessively, effectively resulting in EOP-012-2 failing to meet FERC's directive to "capture[] all bulk electric system generation resources needed for reliable operation and exclude[] only those generation resources not relied upon during freezing conditions" as required by paragraph 58 of FERC's February 16, 2023 Order. This risk could be mitigated through the use of objective, auditable criteria for cost-based GCWC declarations, or at the very least through the use of a process and analysis akin to the review and approval process for Technical Feasibility Exceptions under Appendix 4D of the NERC Rules of Procedure (particularly the Regional Entity preapproval process in section 3.0 of Appendix 4D).

Likes	0
Dislikes	0

Response

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer

Document Name

Comment

NO.   We agree with some comments provided by ACES, AEPC, and Talen but are not going to restate each item specifically.

Likes   0

Dislikes   0

Response

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

2. As opposed to staggering, the SDT chose to shorten the time frame in the implementation plan for the standard as a whole. The SDT responded to industry comments with concerns that staggering did not need to be explicitly required as this will happen naturally due to outage scheduled and resource availability. Do you agree with this approach?

Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
NO. It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	

Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
We agree with the elimination of staggering, and we do not agree with the shorten timeframe.	
Likes 0	
Dislikes 0	
Response	

Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	

Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation agrees in removing the staggering approach from the previous redline, however does not agree with the new implementation dates and recommends remaining with EOP-012-1 original dates.	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
The proposed implementation time frame is too short.	
Likes 0	
Dislikes 0	
Response	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute” EEI supports the modifications made to the EOP-012 Implementation Plan. *In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather*	

Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.	
Likes 0	
Dislikes 0	
Response	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
LS Power Development supports NAGF comments & positions.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy agrees with the approach taken by the Standard Drafting Team to address this issue.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the modifications made to the EOP-012 Implementation Plan.	

Likes 0	
Dislikes 0	
Response	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	Yes
Document Name	
Comment	
Arevon agrees with NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
The NAGF supports the proposed implementation schedule.	
Likes 0	
Dislikes 0	
Response	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	Yes
Document Name	
Comment	
Ameren believes It will be difficult to implement freeze protection measures within the specified timeframe. It is not clear what requirements are going to be effective this year or how implementation will be phased in.	
Likes 0	
Dislikes 0	

Response

Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

Southern agrees with EEI that the current implementation plan is sufficient to address the concerns with staggering and the shortened time frame accomplishes the desire by the FERC directive.

Likes 0

Dislikes 0

Response

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	Yes
Document Name	

Comment

PNM and TNMP agree with new implementation dates in the implementation plan.

Likes 0

Dislikes 0

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	Yes
Document Name	

Comment

PG&E supports the approach.

Likes 0

Dislikes 0

Response

Larry Heckert - Alliant Energy Corporation Services, Inc. - 4

Answer	Yes
Document Name	

Comment

Alliant Energy supports the comments submitted by the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	Yes
Document Name	

Comment

Avista agrees with these comments and the EEI comments. EEI supports the modifications made to the EOP-012 Implementation Plan.

Likes 0	
Dislikes 0	

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	Yes
Document Name	

Comment

MRO NSRF agrees with the approach taken by the Standard Drafting Team to address this issue.

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

Likes 0	
Dislikes 0	

Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees with this approach.	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
There are still concerns from a budgetary, labor and/or parts constraints to obtain the objective.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	Yes
Document Name	
Comment	
AECI supports comments submitted by ACES.	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Avista agrees with these comments and the EEI comments. EEI supports the modifications made to the EOP-012 Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes

Document Name	

Comment

FirstEnergy supports the EOP-012-2 Implementation Plan.

Likes 0	
Dislikes 0	

Response

James Keele - Entergy - 3

Answer	Yes
Document Name	

Comment

In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf on Constellation segements 5 and 6	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Megan Melham - Decatur Energy Center LLC - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thomas Foltz - AEP - 5

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

Same comment about consideration as above.

Shortening the Implementation Plan is appropriate but no changes were made outside the removal of the “staggering” language. As is, existing units will still have an additional year to comply per the Implementation Plan for R3. Just so there is not future debate on the expectations for ECWT calculation expectations- Is it the SDT clearly indicating that units (existing **and new** moving forward) will require a ECWT day 1 of applicability to EOP-012-2? In consideration of comments the SDT repeatedly indicated “The ECWT is based on the location of the proposed unit and **can** be calculated prior to operation at which time the ability to operate at the ECWT will be required.” While the statement is correct there needs to be clarity provided by the SDT because R1 defines a periodic review not an establishment of initial performance. And the Initial Performance language provided in the Implementation Plan only addresses **existing units** and their review expectations. Disagreements on applicability of R1 for new units upon COD will result if clarity is not provided. Please state with utmost clarity that ECWT is to be calculated prior to COD to eliminate misunderstandings or further delay of improvements to reliable operations during extreme weather for units that will be considered “new” after the effective date of EOP-012 is passed. If an initial performance period to establish an ECWT is not defined, per past Enforcement proceedings, an entity will have the periodic time period stated in the Requirement to perform the actions (in this case five calendar years). New entrants to the grid would continue to extend the reliability risk. The verbiage within the other Requirements do not mitigate this gap and depend upon R1 to be completed. To mitigate this reliability gap WECC suggest changing the Initial Performance of Periodic Requirements language to the following:

Initial Performance of Periodic Requirements Existing applicable generating unit(s) for Registered Entities shall be compliant with Requirement R1 by the effective date. Registered Entities with existing applicable unit(s) shall perform their first periodic review for those existing units under Requirement R1 by no more than 60 months after the effective date of EOP-012-2. Newly applicable generating unit(s) shall be compliant with Requirement R1 by their commercial operating date and a periodic review under Requirement R1 shall be performed no more than 60 months after their commercial operating date.

Likes 0	
Dislikes 0	

Response

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

3. Based on industry comments that constraints are expected to be rare and the conditions that drive them will not change frequently, the SDT moved from an annual to a 5-year review. Do you agree with this change?

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

Once a constraint is declared, the SRC is concerned that a five-year review period will delay the identification and adoption of new freeze protection technologies. Since the proposed GCWC definition implies that generators are only required to implement freeze protection technologies that are “generally implemented by the electric industry in areas that experience similar winter climate conditions,” the standard does not provide an incentive for generators to install new freeze protection technologies. As a result, new technologies are unlikely to be installed during the gap between constraint reviews and may not even be installed as a result of the constraint review, as it is unclear how widely a technology must be used before it will be considered “generally implemented.” Given the typical pace of change within the electric utility industry, it may take years for a new technology to be adopted widely enough to be considered “generally implemented.” Consequently, the SRC believes that the best way to ensure that new freeze protection technologies are timely evaluated and implemented is to combine an annual constraint review process with the SRC’s proposed revision of the relevant portion of the GCWC definition to read “practices, methods, or technologies **that would reasonably be expected to result in effective facility performance while operating at the Extreme Cold Weather Temperature (ECWT).”**

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf on Constellation segements 5 and 6

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	

Comment

FirstEnergy agrees with this change from annual to 5-year review.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	Yes
Document Name	

Comment

None.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer Yes

Document Name

Comment

A review periodicity of five years is appropriate. Constraints may be far from rare, however, since they may for example be declared for most if not all wind turbines regarding blading anti-icing systems.

Likes 0

Dislikes 0

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer Yes

Document Name

Comment

Avista agrees with EEI, & supports the change from an annual review to a 5 year review.

Likes 0

Dislikes 0

Response

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI

Answer Yes

Document Name

Comment

AECI supports comments submitted by ACES.

Likes 0

Dislikes 0

Response

Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E

Answer Yes

Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees with this change.	
Likes 0	
Dislikes 0	
Response	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF is supportive of the change to a 5-year review.	
Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	

Avista agrees with these comments and the EEI comments. EEI supports the modifications made to the EOP-012 Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E agrees with this change in frequency.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM and TNMP agree with new moving the annual review to a 5 year review.	

Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	Yes
Document Name	
Comment	
Same comment regarding consideration as above. Annual reviews may actively capture “broadly implemented” practices, methods, or technologies more effectively. Assuming “rare” does not seem to line up with the amount of effort provided by industry to call out constraints and attempt to define criteria for the constraints.	
Likes 0	
Dislikes 0	
Response	
Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern agrees with EEI and supports the change to a 5-year review.	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
The addition of the term “or as needed” adds to the expectation for GO to review/update the Constraint declaration and operating limitations.	

Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the change from an annual review to a 5 year review.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy is supportive of the change to the 5-year review.	
Likes 0	
Dislikes 0	
Response	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
LS Power Devleopment agrees with the 5-year review to align other review requirements in this standard.	
Likes 0	
Dislikes 0	

Response	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
"See comments submitted by the Edison Electric Institute" EEI supports the change from an annual review to a 5 year review.	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Megan Melham - Decatur Energy Center LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE continues to be concerned that there is no requirement explicitly stating the GO shall inform the planning and operational entities, such as the Balancing Authority, Transmission Operator, or Reliability Coordinator of a Generator Cold Weather Constraint. Since the phrase “acceptable practices” in the Generator Cold Weather Constraint definition is vague and could lead to inconsistent application, Texas RE does not agree with increasing the review of the declaration from one year to five years. Generators should be reviewing their declarations annually to ensure all available information is up to date and usable.	
Likes 0	
Dislikes 0	
Response	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

4. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. After reviewing the comments on the previous posting, the team determined to not change the timeframe in the posted implementation plan for reasons explained in the Consideration of Comments. If you have any further comments, please provide them here.

Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
NO. We agree with some comments provided by AES and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	
David Rivera - New York Power Authority - 3	
Answer	No
Document Name	
Comment	
NYPA has concerns about the CAP timelines mentioned in the standard. Given the extended lead time for delivery, potential financial burden, and resource allocation issues, especially if CAP required for multiple units, NYPA recommends that the SDT consider providing more flexibility to utilities regarding CAP timelines.	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	

While the timelines specified in R7, Parts 7.1.1 and 7.1.2, might be reasonable for the R1 re-calculations of ECWTs in the future, we are concerned that they may be unreasonable for the initial performance hurdle of R1/R3, particularly for entities that own a lot of applicable units. Even if an entity has the funding to implement the changes, there are a limited number of OEMs and design firms able to support the work, and they may be utilized by numerous GOs for such work. We suggest the Implementation Plan allow for existing units to be brought into initial compliance within six (6) years (10/1/2031), with percentage milestone completion targets for years 4 (30%), 5 (60%), and 6 (100%)..

Likes 0	
Dislikes 0	

Response

C. A. Campbell - LS Power Development, LLC - 5

Answer	No
Document Name	

Comment

LS Power Development supports NAGF comments. Additionally, as written entities have 12 months to develop a CAP from the implementation date, this would mean that all required assessments would have to be concluded prior to the implementation date (10/1/2024) in order to take full advantage of that 12 month timeframe. CAPs dedicated to winter weatherizations require coordination around existing scheduled outages, so preceeding assessments & resulting development may require a longer timeframe. Should entities rely on historical operations and an issue occurs within that 12-month period, then the timeframe would be even more restrictive. There are no carve-outs for scenarios deviating from existing assumptions.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The SRC is concerned that the period allotted for implementation of freeze protection measures remains excessive due to the amount of time industry has already had to implement freeze protection measures. The SRC believes it is important for the standard to require implementation of freeze protection measures as quickly as reasonably possible and believes that a reduced timeframe for CAP implementation will help achieve this goal. However, the SRC recognizes that the standard also needs to account for the potential impacts of large generation fleets, complex freeze protection measure installation procedures, and limited outage windows in which corrective actions can be implemented. Therefore, the SRC recommends that language be added to R7.3 to allow entities necessary flexibility in implementing their CAPs should they encounter obstacles that prevent them from timely completing the CAP. Revised CAPS would be submitted to and approved by NERC and/or the relevant Regional Entity to ensure that a defined completion period is established. This language, paired with the shorter implementation timeframes in R7.1 that the SRC recommends below, strikes an appropriate balance between expeditious implementation of corrective actions and appropriate allowance for and oversight of the impacts of unpredictable real-world conditions.

In addition, the SRC continues to recommend that the drafting team further clarify the language regarding CAPs in Requirement R7. As proposed, R7 does not appear to include sufficient focus on CAP implementation. Additionally, the SRC reads Part 7.1.1 to require a GO to "[l]ist the action(s) which address(es) existing equipment or freeze protection measures" and to implement those within 24 calendar months, while Part 7.1.2 requires a GO to "[l]ist the action(s) which require(s) new equipment or freeze protection measures" and implement those within 48 calendar months.

However, because some corrective actions may address existing equipment and also require new measures, these categories are not necessarily mutually exclusive, and an ambiguity could therefore arise regarding the appropriate timeline that would apply in such a case. The SRC presumes that the CAP implementation timeline should depend on whether new equipment is required to be installed, and not on whether the CAP "addresses" existing equipment or measures. Regarding the timeline, new "measures" that don't require new equipment would not seem to require more than a year to complete, while new equipment should not require more than two years in the vast majority of cases. Therefore, the proposed 24- and 48-month timelines seem excessive.

The SRC suggests the following revised language for Requirement R7, Parts 7.1 and 7.3:

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1 **(new subpart**) Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, document the generator's best efforts to promptly implement all immediate and near term actions that it can undertake prior to the next upcoming winter season to winterize the generating unit(s) to operate at its calculated Extreme Cold Weather Temperature;

7.1.2 (in place of 7.1.1) Specify each corrective action that does not require the installation of new equipment but which cannot be implemented prior to the next upcoming winter season. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 12 months of the development of the Corrective Action Plan;

7.1.3. (in place of 7.1.2) Specify each corrective action that requires the installation of new equipment. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 24 months of the development of the Corrective Action Plan;

7.1.4. (formerly R7.1.3) List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and

7.3 Update the Corrective Action Plan, with justification **and supporting documentation of the needed implementation time**, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1, **and report the update and associated justification and supporting documentation to NERC and/or the relevant Regional Entity for review and approval** . . .	
Likes 0	
Dislikes 0	
Response	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	No
Document Name	
Comment	
R7. Part 7.1.1 and Part 7.1.2 have hard deadlines for Corrective Action Plans. Part 7.1 should clearly indicate that these deadlines are superseded when an extension is justified by Part 7.3.	
Likes 0	
Dislikes 0	
Response	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	No
Document Name	
Comment	
Arevon agrees with NAGF comments. The proposed timelines are likely sufficient for implementing repairs or new freeze protection measures on a single unit. However, CAPs are required to address other like units as well. Because that could increase the number of units that must be addressed, the timelines are not sufficient. We understand that FERC referenced TPL-007 as a model for the CAP timeline. We also understand that one plant maintenance manager agreed that this timeline was reasonable for a single unit. However, neither of those “recommendations” address multiple like units. To the extent that the standard requires the CAPs to address like units, the time to implement the CAP must address the need to budget, engineer, plan, schedule and implement corrections for more than one unit. If a CAP must address 10 units, a four-year time frame is not likely to be achievable. As currently structured, a GO will need to create one CAP that addresses the timeline and then create a “revised” CAP that is more realistic.	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	

Answer	No
Document Name	

Comment

We do not agree with the proposed EOP-012-2 Implementation Plan timeframe for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. This shortened timeframe will increase competition for vendor resources. This is a deviation from the FERC direction to NERC. FERC directed NERC to address concerns relating to the extensive period before generators must implement freeze protection measures or develop corrective action plans. This is not equivalent with the GOs having the capability to operate at the ECWT or a CAP written by the effective date of the requirement.

The major and necessary decrease in reliability risk is achieved through the mere implementation of freeze protection measures, which will eliminate the simultaneity of the generator cold weather events. Appropriate planning should ensure adequate reserve is available to replace the generating units subject to a cold weather event.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	No
Document Name	

Comment

For units with a low capacity factor (peaking generation) it is difficult to identify and implement design improvements that will increase cold weather reliability

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	

Comment

The proposed timeline are likely sufficient for implementing repairs or new freeze protection measures on a single unit. However, CAPs are required to address other like units as well. Because that could increase the number of units that must be addressed, the timelines are not sufficient. We understand that FERC referenced TPL-007 as a model for the CAP timeline. We also understand that one plant maintenance manager agreed that this timeline was reasonable for a single unit. However, neither of those "recommendations" address multiple like units. To the extent that the standard requires the CAPs to address like units, the time to implement the CAP must address the need to budget, engineer, plan, schedule and implement corrections for more than one unit. If a CAP must address 10 units, a four-year time frame is not likely to be achievable. As currently structured, a GO will need to create one CAP that addresses the timeline and then create a "revised" CAP that is more realistic.

Likes 0	
Dislikes 0	

Response

Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano

Answer	No
Document Name	

Comment

We agree with some comments provided by AES and Talen but are not going to restate each item specifically.

Likes 0	
Dislikes 0	

Response

Megan Melham - Decatur Energy Center LLC - 5

Answer	No
Document Name	

Comment

The proposed timeline are likely sufficient for implementing repairs or new freeze protection measures on a single unit. However, CAPs are required to address other like units as well. Because that could increase the number of units that must be addressed, the timelines are not sufficient. We understand that FERC referenced TPL-007 as a model for the CAP timeline. We also understand that one plant maintenance manager agreed that this timeline was reasonable for a single unit. However, neither of those "recommendations" address multiple like units. To the extent that the standard requires the CAPs to address like units, the time to implement the CAP must address the need to budget, engineer, plan, schedule and implement corrections for more than one unit. If a CAP must address 10 units, a four-year time frame is not likely to be achievable. As currently structured, a GO will need to create one CAP that addresses the timeline and then create a "revised" CAP that is more realistic.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AES Clean Energy supports NAGF’s comments. Depending on the findings from R6.2, the CAP could involve multiple units. For an IPP that operates across multiple regions, the time needed to develop O&M budget, issue RFPs for addressing the action items listed in the CAP and completing the work can be longer than the 48 months under R7.1.2. This does not even include supply chain issues if there are only limited OEMs able to provide the equipment as well as capable contractors to perform installation of the equipment. CAP completion should be contingent upon technical feasibility of the equipment and available replacement.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree with the new dates and recommends remaining with EOP-012-1 original dates.	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
We suggest that Requirement R3 should have a 24-month implementation time frame. For generating units in commercial operation, a 12-month implementation time frame is not enough.	
Likes 0	
Dislikes 0	

Response	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
The proposed deadlines may be impractical for companies with numerous units to address, particularly if EOP-012 creates a continent-wide surge in winterization activity that reduces the availability of qualified contractors and materials. Deadlines from the date of the GCWRE are also needed for generation units that were compliant on 10/1/2024 but froze-up at a later date.	
Likes 0	
Dislikes 0	
Response	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute” EEI supports the proposed timeline.	
Likes 0	

Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy is supportive of timeframes as posted.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the proposed timeline.	
Likes 0	
Dislikes 0	
Response	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	Yes
Document Name	
Comment	
See our comments in Q2.	
Likes 0	
Dislikes 0	
Response	

Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern agrees with EEI and supports the proposed implementation timeframe of EOP-012-2.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM and TNMP agree with new implementation dates in the implementation plan.	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E does not have any further comments on the implementation time frame.	
Likes 0	
Dislikes 0	
Response	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	

Answer	Yes
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista, EEI supports the proposed timeline.	
Likes 0	
Dislikes 0	
Response	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF is supportive of timeframes as posted.	
Likes 0	
Dislikes 0	
Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	

Comment	
AZPS agrees with this timeframe.	
Likes 0	
Dislikes 0	
Response	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
There are still concerns from a budgetary, labor and/or parts constraints to obtain the objective.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	Yes
Document Name	
Comment	

AECI supports comments submitted by ACES.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	Yes
Document Name	

Comment

None.

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	

Comment

FirstEnergy supports the proposed timeline.

Likes 0	
Dislikes 0	

Response

James Keele - Entergy - 3

Answer	Yes
Document Name	

Comment

Effective Date

10/1/2024

10/1/2024

Have Capability to Operate at ECWT or CAP Developed

4/1/2028

10/1/2025

CAP Completed

no end date specified

10/1/2027 (R7.1.1) or 10/1/2029 (R7.1.2)

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf on Constellation segements 5 and 6

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Colin Chilcoat - Invenergy LLC - 6

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	

Response

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

Same comments regarding consideration.

Existing units applicability is covered. New units applicability dates are not captured effectively and changes to the Implementation Plan should be considered to mitigate this reliability gap. The phrase “as determined in Requirement R1” is used extensively but the Initial Performance for newly applicable generating unit(s) is not addressed in the Implementation Plan thus giving new units “five calendar years” to develop an ECWT.

Likes 0	
Dislikes 0	

Response

5. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	

Comment

Ref. our, “Do it right the first time,” comment for Question 1 above, the EOP-012-2 new unit of the 0.2 percentile dry bulb temperature (for a look-back to 1/1/2000) plus a 20 mph wind criterion has no scientific basis, and for our own units would not protect against a repetition of the Polar Vortex of 2014 or Winter Storm Uri.

New units should be winterized to the ASHRAE 50-year recurrence dry bulb temperature plus a 20 mph wind. This should be a once-and-done exercise, not something requiring periodic adjustment and potentially having to tear-out everything originally done for EOP-012 and start over.

Likes 0	
Dislikes 0	

Response

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI

Answer	No
Document Name	

Comment

AECI supports comments submitted by ACES.

Likes 0	
Dislikes 0	

Response

Richard Vendetti - NextEra Energy - 5

Answer	No
Document Name	

Comment

EOP-012-2 as it stands, requires implementation of “freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature”.

It will be extremely difficult for wind turbine generators to comply with this standard and always guarantee reliable operation if considering temperature only as the criteria. This is due to the formation of ice on blades. This phenomenon does not depend solely on ambient temperature but other factors such as water content in the air, altitude & sky conditions among others. It is known from operational experience that if certain ambient conditions are present, the wind turbine generators will accrete substantial amount of ice on blades even if ambient temperature is within the design limit of the wind turbine generator. The formation of ice on blades can be so extreme that it would lead to the inevitable shutdown of the wind turbine generator. We would like to encourage the Standard Drafting Team to include required limits for all the variables which play a role on the fundamental blade icing physics. That would help Generator Owners to consider as freeze protection measures technologies which could help prevent ice accretion

Likes 0

Dislikes 0

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

Our generating units are operating below 32 degrees Fahrenheit (zero degrees Celsius) for more than half of the time in a year. Cold weather operation in winter is our normal operation. It significantly increases compliance cost if documentation is required for cold weather preparedness plans because they are embedded in the well developed and practiced maintenance and operation procedures. Even though the proposed M4 includes the existing operating procedures, it is still an undue administrative burden to extract the cold weather-related part from the existing procedures. There is a risk of reducing reliability if the routines are broken when trying to reorganize the maintenance and operation procedures. Specific cold weather-related training increases cost for the normal operating duties in our region. This is not a proper way to increase reliability.

Likes 0

Dislikes 0

Response

Richard Jackson - U.S. Bureau of Reclamation - 1

Answer	No
Document Name	

Comment

Reclamation does not agree. As annotated in previous comments, Reclamation facilities have been operating in “extreme cold weather” since inception, and this standard burdens the facilities with excessive requirements and unnecessary administrative actions.

Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
NRG believes that this version is an improvement over previous versions of this draft standard. However, implementing EOP-011 has proven to be a large undertaking with equally large associated costs. The transition to EOP-012 with the costs of additional equipment and administrative overhead to meet the requirements does not appear to be cost-effective for generators.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
NRG believes that this version is an improvement over previous versions of this draft standard. However, implementing EOP-011 has proven to be a large undertaking with equally large associated costs. The transition to EOP-012 with the costs of additional equipment and administrative overhead to meet the requirements does not appear to be cost-effective for generators.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
Refer to AES Clean Energy’s comments to Question 4.	

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC has signed on to ACES comments:

We do not believe that either following changes are a cost-effective solution:

- The inclusion of “impacts of freezing precipitation on equipment” in the definition of “Generator Cold Weather Reliability Event”
    - By including the impacts of freezing precipitation on equipment, the proposed revision could potentially cause the industry to adopt an iterative approach to compliance. Furthermore, modifying the definition in such a manner could cause the GO to be at risk of non-compliance with Requirement R6 even when fully compliant with R2 or R3 as applicable.
        - As written, Requirements R2 and R3 require the GO to implement freeze protection measures based on the Extreme Cold Weather Temperature; however, the GO is not required to address the impacts of freezing precipitation on equipment under either Requirement.
- The modification to Requirement R4 Part 4.4 changing “may include” to “includes”
    - This seemingly minor change has enormous compliance consequences for the GO.
        - By requiring the GO to document freeze protection measures used to reduce the cooling effects of wind and the effects of freezing precipitation, the proposed change will force the GO to evaluate and possibly implement such measures. This is further exacerbated by the fact that Requirements R2 and R3 only require the GO to implement freeze protection measures based on temperature alone.
            - We believe such an evaluation and subsequent implementation is cost prohibitive and an undue compliance burden for the GO.
        - We recommend reverting to the previous language for Requirement R4 Part 4.4.

Likes 0	
Dislikes 0	

Response

Megan Melham - Decatur Energy Center LLC - 5

Answer	No
Document Name	

Comment

Please see the response to question 4 for the concerns to address improvements for a cost-effective approach.	
Likes 0	
Dislikes 0	
Response	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
The SDT has not provided a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	No
Document Name	
Comment	
Invenergy believes the SDT improved upon the previous draft, but, absent a comprehensive cost-benefit analysis, is not in a position to comment on the cost-effectiveness of the modifications in EOP-012-2	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No

Document Name

Comment

Please see the NAGF response to question 4 for the concerns to address improving the cost -effective approach.

Likes 0

Dislikes 0

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer No

Document Name

Comment

The requirement to implement additional freeze protection measures at a site with a low capacity factor is not likely to be “cost effective”. The capital investments necessary to improve reliability of generating units that were not designed to operate at a lower temperature will drive up the cost of electricity for everyone.

Likes 0

Dislikes 0

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer No

Document Name

Comment

There is no reliability gap for the Canadian Entities, as these entities are successfully operating in a Cold Climate through the associated extremes, with the aid of their current operating instructions, procedures, training, and specific station design.

There should be an **exception in the applicable Facilities, to exclude the Canadian BES generating units**, as a cost-effective approach, without the undue compliance burden, towards the reliable operation of these facilities.

Likes 0

Dislikes 0

Response

Srinivas Kappagantula - Arevon Energy - 5

Answer	No
Document Name	
Comment	
Please see response to question 4 for the concerns to address improving the cost -effective approach.	
Likes 0	
Dislikes 0	
Response	
Colin Chilcoat - Invenergy LLC - 6	
Answer	No
Document Name	
Comment	
Invenergy believes the SDT improved upon the previous draft, but, absent a comprehensive cost-benefit analysis, is not in a position to comment on the cost-effectiveness of the modifications in EOP-012-2.	
Likes 0	
Dislikes 0	
Response	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	No
Document Name	
Comment	
Part 7.1 should clearly indicate that deadlines are superseded when an extension is justified by Part 7.3. There are instances where implementing corrective action plans at a date later than prescribed by 7.1.1 and 7.1.2 would not impose additional reliability risks and could provide substantial cost savings for regulated entities.	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	

Answer	No
Document Name	

Comment

We do not believe that either following changes are a cost-effective solution:

- The inclusion of “impacts of freezing precipitation on equipment” in the definition of “Generator Cold Weather Reliability Event”
    - By including the impacts of freezing precipitation on equipment, the proposed revision could potentially cause the industry to adopt an iterative approach to compliance. Furthermore, modifying the definition in such a manner could cause the GO to be at risk of non-compliance with Requirement R6 even when fully compliant with R2 or R3 as applicable.
        - As written, Requirements R2 and R3 require the GO to implement freeze protection measures based on the Extreme Cold Weather Temperature; however, the GO is not required to address the impacts of freezing precipitation on equipment under either Requirement.
- The modification to Requirement R4 Part 4.4 changing “may include” to “includes”
    - This seemingly minor change has enormous compliance consequences for the GO.
        - By requiring the GO to document freeze protection measures used to reduce the cooling effects of wind and the effects of freezing precipitation, the proposed change will force the GO to evaluate and possibly implement such measures. This is further exacerbated by the fact that Requirements R2 and R3 only require the GO to implement freeze protection measures based on temperature alone.
            - We believe such an evaluation and subsequent implementation is cost prohibitive and an undue compliance burden for the GO.
        - We recommend reverting to the previous language for Requirement R4 Part 4.4.

Likes 0	
Dislikes 0	

Response

C. A. Campbell - LS Power Development, LLC - 5

Answer	No
Document Name	

Comment

LS Power Development supports NAGF comments & position for this question. There are unaddressed concerns relating to cost-effectiveness.

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

The requirements may not directly align with other regulatory requirements including NRC, which may increase costs due to redundancy while accomplishing similar goals.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation has no additional comments.

Kimberly Turco on behalf on Constellation segements 5 and 6

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	Yes
Document Name	

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	
Comment	
FirstEnergy agrees with the proposed approach toward EOP-012-2.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Avista agrees with the EEI comments. EEI agrees that EOP-012-2 meets the key recommendations in the Report	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	

Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF has no comments regarding the cost effectiveness of the proposed modifications.	
Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista agrees with the EEI comments. EEI agrees that EOP-012-2 meets the key recommendations in the Report.	
Likes 0	
Dislikes 0	
Response	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	

Alliant Energy supports the comments submitted by the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	Yes
Document Name	

Comment

PG&E agrees with the modifications.

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	Yes
Document Name	

Comment

PNM and TNMP agree that cold weather implementations can be enacted in a cost-effective manner.

Likes 0	
Dislikes 0	

Response

Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	Yes
Document Name	

Comment

Southern agrees with EEI and believes the requirements in EOP-012-2 are reasonable and provide for the most cost-effective manner to achieve the desired results.

Likes 0	
Dislikes 0	

Response

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer	Yes
Document Name	

Comment

EEI agrees that EOP-012-2 meets the key recommendations in the Report.

Likes 0	
Dislikes 0	

Response

Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6

Answer	Yes
Document Name	

Comment

“See comments submitted by the Edison Electric Institute”

EEI agrees that EOP-012-2 meets the key recommendations in the Report.

Likes 0	
Dislikes 0	

Response

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	
Document Name	
Comment	
AZPS will not comment on cost effectiveness of this directive.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	

Document Name

Comment

WECC will leave commenting on cost effectiveness to the registered entities that must comply with the proposed standard.

Likes 0

Dislikes 0

Response

Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler

Answer

Document Name

Comment

Ameren will not comment on the cost effectiveness of the project.

Likes 0

Dislikes 0

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer

Document Name

Comment

NV Energy has no comments regarding the cost effectiveness of the proposed modifications.

Likes 0

Dislikes 0

Response

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer

Document Name

Comment

NO. The SDT has not provided a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply says there is a reliability gap, or a risk, but does not provide estimated tangible reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	

6. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	
Document Name	

Comment

In FERC and NERC's joint 2017 Cold Weather report they suggested a three prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA's, RTO's, and TO's which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas.

It is also concerning that some people have been pressing Industry to accept this version, or else NERC will force it, or something else. There is no evidence that these modification will improve reliability and they certainly are not cost effective. It appears standards are being changed, or created, just to create the appearance that something is being done. We need tangible evidence that standards being made or changed will improve reliability, the degree of reliability improvement, and the cost/benefit to make said changes.

Likes 0	
Dislikes 0	

Response

Romel Aquino - Edison International - Southern California Edison Company - 1,3,5,6

Answer	
Document Name	

Comment

See comments submitted by the Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	
Document Name	

Comment

It may be beneficial to provide a way to exclude some operating limitations under R1, Part 1.2.1 for units that are not going to be applicable. For example, fuel supply and inventory concerns for hydro, wind, or solar generation.

EOP-012-1 Requirements R3, R5, R6 and R7 are currently scheduled to become effective 10/1/2024. The proposed Implementation Plan for EOP-012-2 has it becoming effective “on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority’s order approving the standard, or as otherwise provided for by the applicable governmental authority”. This leaves the industry with a good bit of uncertainty in how to prepare for the mandatory and enforceable version of EOP-012 that will be effective in less than 10 months from now. Since EOP-012-1 Requirements R3, R5, R6 and R7 are the current nearest “known”, we request the drafting team consider adding some additional language in the EOP-012-2 Implementation Plan to address a scenario where the applicable governmental authority’s order approving the EOP-012-2 standard occurs at any time prior to October 1, 2024. Under this scenario, we suggest that EOP-012-1 Requirements R3, R5, R6 and R7 not be enforced. Possible language to consider:

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective. ***Should the applicable governmental authority’s order approving EOP-012-2 be issued prior to October 1, 2024, EOP-012-1 will not have an effective period.***

In other words, if the effective date of EOP-012-2 should slide to January 1, 2025 (approval order issued between 7/1/24 and 9/30/24), don’t create a three month enforcement window for EOP-012-1.

Likes 0	
Dislikes 0	

Response

C. A. Campbell - LS Power Development, LLC - 5

Answer	
Document Name	

Comment

The Standard Drafting Team has done an exceptional job with trying to meet the demands of so many positions revolving around industry participant contraints and needs. We are sensitive to the challenge of meeting FERC directives in this project and appreciate the efforts and intent to improve reliablity during the winter season. LS Power Development agrees with the NAGF comments and requests consideration of further revisions.

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	

Document Name	

Comment

Thank you for the opportunity to comment.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	
Document Name	

Comment

The SRC provides the following additional comments:

Revise the applicability of the standard to better match FERC's directives - The SRC agrees with the proposed revisions to the Applicability section of the Standard but remains concerned with the existing generating unit exemptions contained in Requirements R2, R3, and R6 and related footnotes, as these exemptions appear to allow unit(s) needed for reliable operation to be exempt from meeting the Requirements to implement freeze protection measures and develop a CAP as needed. In order to meet the directive in paragraph 58 of FERC's February 16, 2023 Order that the standard should "capture[] all [BES] generation resources needed for reliable operation and exclude[] only those generation resources not relied upon during freezing conditions," the SRC recommends the following revisions:

-- Replace "self-commits or that is required to operate" with "that may be committed to operate" in Requirements R2, R3, and R6.

-- Remove or revise footnotes 1, 2, and 4.

--- If the footnotes are revised instead of removed, the SRC proposes the following language: *Generating unit(s) that were intentionally designed for limited operation in the summer season, but may operate on a "best efforts" basis during the winter season when needed in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.*

Add timing specificity for required inspections & maintenance - The SRC recommends that Requirement R4, Part 4.5 be revised to require inspections and maintenance of all units on "at least an annual basis, and always within three months of the upcoming winter season." This request is due to past and current findings in which the GO/GOP did not initiate inspection and maintenance early enough or prior to winter and was consequently not timely prepared for cold weather operations.

Revise R1.1.1 - The SRC notes that R1.1.1 requires development of a CAP within 6 months of the recalculation of the ECWT if new corrective actions are needed to provide the required operational capability under Requirement R3, but does not contain a corresponding requirement for the operational capability required under Requirement R2. The SRC believe that it is important for R1.1.1 to address the impact of a recalculated ECWT on both

Requirement R2 and Requirement R3; the SRC therefore recommends that R1.1.1 be revised to require creation of a CAP if new corrective actions are needed to provide the required operational capability under both R2 and R3.

Combine Requirements R2 and R3 - The SRC also disagrees that the enhanced cold weather requirements that are contained within Requirement R2 should be limited to units that enter commercial operation on or after October 1, 2027. Requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units and only allows CAPs for units that achieved commercial operations before October 1, 2027. The GCWC declaration process and the Corrective Action Plan process within EOP-012 provide sufficient accommodation for existing units. Adopting the SRC's proposal would require more thorough weatherization of generation units, resulting in a more reliable and performant BES during extreme cold weather conditions.

Ensure sufficient data provision to BAs - Phase II of the Cold Weather Recommendations in FERC's report on Winter Storm Uri indicated in its discussion of TOP-003-5 in Key Recommendation 1g that the Reliability Standards should be revised to provide greater specificity about the relative roles of the Generator Owners, Generator Operators, and Balancing Authorities in determining the generating unit capacity that can be relied upon during "local forecasted cold weather." It is currently unclear to the SRC whether the five-year review period for GCWCs under EOP-012-2 Requirement R8 places GCWC information outside the operations planning time horizon in TOP-003-5 Requirement R2 and therefore out of scope for a valid TOP-003-5 data specification. The SRC requests that the drafting team provide clarification on this topic.

Likes 0	
Dislikes 0	

Response

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	
Document Name	

Comment

NV Energy appreciates the hard work that the SDT has put into this drafting process. Their response to industry comments is a testament to the success of the Standard Drafting Process and NV Energy supports the approval of this draft based solely on the merits of the proposed language.

However, NV Energy is concerned about the addition of R1.2.1.3. We feel that this addition increases documentation burden but does not add any reliability value. Additionally, this issue would be handled by the CAP process if there are startup issues that are classified as Generator Cold Weather Reliability Events.

Likes 0	
Dislikes 0	

Response

Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro

Answer	
Document Name	

Comment

1. BC Hydro noted that Requirement R1 Part 1.1.1. includes only Requirement R3 in relation to CAP development 6-month timeline. Without referencing R2 as well, generating units with a commercial operation date on or after October 1, 2027 would not be covered by this 6-month CAP development provision. Previous drafts included both R2 and R3 in this Part 1.1.1, and per the November 16, 2023 webinar this appeared to be an oversight that was to be corrected.

2. BC Hydro thanks the drafting team for their response to our suggestion on the R6 timeline in the previous draft. While we understand that there is no expectation to complete the CAP by July 1, as “freezing precipitation” may result in EOP-012 events well into the Spring calendar months (March, April, or even May in extreme conditions) in British Columbia, which – given the July 1 deadline – will add considerable burden in timely completion of the CAP development in the context of Requirement R6.

BC Hydro recommends that the wording of the Requirement R6 be changed to allow up to 150 calendar days in cases where the July 1 deadline may result in considerably shorter than 150-day timeframe to develop a CAP for events later in the year.

Likes 0	
Dislikes 0	

Response

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer	
Document Name	

Comment

Santee Cooper agrees with the NAGF comments, but has additional comments below:

In the Standard:

R7. Part 7.1.1 and Part 7.1.2 have hard deadlines for Corrective Action Plans. Part 7.1 should clearly indicate that these deadlines are superseded when an extension is justified by Part 7.3.

R7. Part 7.1.4 is still listed and discussed in the Rationale in several places even though it has been removed from the Standard.

In the Tech Rationale:

R4. General Considerations states… “and the GO is required to annually train personnel on its (the plan’s) requirements.” Any requirement for content of training should be explicitly stated in the Standard.

R5. Technical Rationale is more prescriptive regarding the personnel required to be trained. Requirement R5 requires training for personnel responsible for implementation of the plan which does not necessarily include all individuals who conduct inspections, perform maintenance, and operations, but can be limited to supervision for the overall implementation of the Plan.

R5 in the Technical Rationale also specifies training contents not listed in the requirement. Any intended training contents should be explicitly stated in Requirement R5.

R7. The explanation states that the Corrective Action Plan requirements were modeled after TPL-007. TPL-007 allows for 2 years for non-hardware mitigations. This would be equivalent to a setpoint change or a procedural change and is very appropriate. Hardware related mitigations in TPL-007 are granted 4 years for completion. If TPL-007 Corrective Action Plans were adopted by EOP-012, corrective actions requiring existing hardware replacements would be granted 48 months for completion.

Likes 0

Dislikes 0

Response

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6

Answer

Document Name

Comment

While the drafting team has made its intent clear in the Technical Rationale document regarding extreme cold weather startups, Dominion Energy remains concerned that the current language of the standard fails to include realistic start-up assumptions for older generators or generators with certain fuel types prejudicially by imposing what may be unreasonable start-up time frames during extreme cold weather, based on the facts and circumstances at that time. Many generators are designed to operate in extreme cold weather but not to startup on short notice during the same conditions. A generator may have a typical startup time for expected conditions but have an extended startup time the extreme cold weather temperature was not designed to start up at. There is no way to test a generator(s) startup period in an extreme weather condition until the situation occurs. The standard should account for this and specify that generators should only be required to communicate these abnormal startup issues and changes to expected startup periods rather than be required to perform a CAP to retrofit a facility to be able to startup at its extreme cold weather temperature.

Likes 0

Dislikes 0

Response

Colin Chilcoat - Invenergy LLC - 6

Answer

Document Name

Comment

Revise M8 to reflect the revised constraint declaration review cadence of at least every five calendar years.

Please validate our understanding that Generator Cold Weather Reliability Events for which the apparent cause is due to freezing of equipment subject to a Generator Cold Weather Constraint do not require Corrective Action Plans. For example, if a Generator Owner has declared a Generator Cold Weather Constraint for its wind turbine blades, would the Generator Owner need to develop a Corrective Action Plan for each Generator Cold Weather Reliability Event caused by blade icing?

Likes 0

Dislikes 0

Response

Srinivas Kappagantula - Arevon Energy - 5

Answer

Document Name

Comment

Arevon agrees with the NAGF comments.

1. The SDT has improved the proposed standard significantly. There are still areas that can be improved upon, and the NAGF hopes to see these improvements in the near future. Assuming this iteration is approved by the ballot body, the NAGF would like to see the SDT continue to address areas of concern, specifically improving the language around the training requirements, further refining the ECWT calculation to ensure it is sustainable over time, improve areas like 1.2 to better address the differences in generator types (there is no reason for a wind or solar facility to include language in their cold weather plan about fuel supply concerns or fuel switching capabilities, but as written, auditors are suggesting PNCs if the plan does not address these two items). These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.

2. New sub-requirement: R1.2.1.3 Start-up issues:

The NAGF requests the drafting team and NERC to consider including the same requirement in IRO-010 or TOP-003. Currently, TOP-003-5 that became effective on 4/1/2023 has no sub-requirement for BA and TOP to require similar data from GO/GOP. Therefore, addition of this sub-requirement in EOP-012-2 will lead to administrative work that may have no effect on reliability if it’s not being requested or utilized. Although it is specified in the new TOP-002-5 R8 where it applies to the BA only, there is no corresponding requirement for the BA in TOP-003. It is only assumed that BA will need the data and list it in their data specification.

3. Technical Rational Document enhancements:

a. The NAGF recommends that the drafting team include examples in Technical Rational regarding “Start-up issues” and differentiate between synchronous generators and IBRs.

b. Generator Cold Weather Critical Component – the NAGF notes that with the exclusion language added for any component and/or system located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32F, it is unclear whether this applies to containers for inverters and battery energy storage systems which are normally temperature controlled via a HVAC system. We recommend the drafting team provide further details on what is considered “permanent building”.

Likes 0

Dislikes 0

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer

Document Name

Comment

OPG supports the Hydro Quebec comment: “While we appreciate the great efforts the SDT has made to improve the proposed standard, there are still areas that can be improved on, specifically in regard to the applicability section to better address the differences in generator types and the training requirements. These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.”

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	
Document Name	

Comment

See NAGF comments. We would like to see additional changes to EOP-012 to address language that could cause inconsistency in approach.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	
Document Name	

Comment

The NAGF provides the following additional comments for consideration:

1. The SDT has improved the proposed standard significantly. There are still areas that can be improved upon, and the NAGF hopes to see these improvements in the near future. Assuming this iteration is approved by the ballot body, the NAGF would like to see the SDT continue to address areas of concern, specifically improving the language around the training requirements, further refining the ECWT calculation to ensure it is sustainable over time, improve areas like 1.2 to better address the differences in generator types (there is no reason for a wind or solar facility to include language in their cold weather plan about fuel supply concerns or fuel switching capabilities, but as written, auditors are suggesting PNCs if the plan does not address these two items). These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.

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a. The NAGF recommends that the drafting team include examples in Technical Rational regarding "Start-up issues" and differentiate between synchronous generators and IBRs.

b. Generator Cold Weather Critical Component – the NAGF notes that with the exclusion language added for any component and/or system located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32F, it is unclear whether this applies to containers for inverters and battery energy storage systems which are normally temperature controlled via a HVAC system. We recommend the drafting team provide further details on what is considered "permanent building".

Likes 0

Dislikes 0

Response

Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler

Answer

Document Name

Comment

Ameren believes the 20mph wind requirement is not practical.

Likes 0

Dislikes 0

Response

Rhonda Jones - Invenergy LLC - 5,6

Answer

Document Name

Comment

- Revise M8 to reflect the revised constraint declaration review cadence of at least every five calendar years.
- Please validate our understanding that Generator Cold Weather Reliability Events for which the apparent cause is due to freezing of equipment subject to a Generator Cold Weather Constraint do not require Corrective Action Plans. For example, if a Generator Owner has declared a Generator Cold Weather Constraint for its wind turbine blades, would the Generator Owner need to develop a Corrective Action Plan for each Generator Cold Weather Reliability Event caused by blade icing?

Likes 0

Dislikes 0

Response

Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano

Answer

Document Name

Comment

In FERC and NERC's joint 2017 Cold Weather report they suggested a three prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA's, RTO's, and TO's which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas.

Likes 0

Dislikes 0

Response

Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

Southern wishes to thank the SDT for their efforts to provide a reasonable and cost-effective standard for the industry that is broad enough to encompass a variety of climatic conditions and generator types.

Likes 0

Dislikes 0

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer

Document Name

Comment

The examples of possible Generator Cold Weather Constraints within the Technical Rationale do not support the proposed language changes for the definition of Generator Cold Weather Constraint. The examples, if provided at all in a Technical Rationale versus an Implementation Guidance document, should be updated to clearly reflect the proposed language.

Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	
Document Name	
Comment	
NPCC RSC supports this draft and thank you for all your hard work.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	

Response

Junji Yamaguchi - Hydro-Quebec (HQ) - 5

Answer	
Document Name	

Comment

While we appreciate the great efforts the SDT has made to improve the proposed standard, there are still areas that can be improved on, specifically in regard to the applicability section to better address the differences in generator types and the training requirements. These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.

Likes 0	
Dislikes 0	

Response

Nicolas Turcotte - Hydro-Quebec (HQ) - 1

Answer	
Document Name	

Comment

While we appreciate the great efforts the SDT has made to improve the proposed standard, there are still areas that can be improved on, specifically in regard to the applicability section to better address the differences in generator types and the training requirements. These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.

Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	

Response

Hillary Creurer - Allete - Minnesota Power, Inc. - 1

Answer	
Document Name	

Comment

Minnesota Power turbines are designed with the cold weather package, which allows for operation down to -22 degrees Fahrenheit, though Extreme Cold Weather Temperatures in our region are less than that. We are not aware of any manufacturers that are offering options to allow for operation below this temperature, nor any new turbines being built with the capability to operate below this level. Deviating from manufacturer recommendations would void warranties, creating a significant financial and reliability risk for the turbines. It is our understanding that a Cold Weather Constraint may be applicable in this situation, since other cold weather packages are “not broadly implemented at generating units that comparable unit types in regions that experience similar winter climate conditions…” However, the Technical Rationale and Justification for EOP-012-2 states that “A declaration that no further corrective actions will be taken is expected to be used sparingly.” “Sparingly” seems to be an understated term, since this may be a common declaration for turbines that are operating in extreme climates.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	
Document Name	

Comment

Thank you for the opportunity to comment.

Likes 0	
Dislikes 0	

Response

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments

Answer	
Document Name	

Comment

PG&E recommends the SDT add the R2 Footnote 1 and R3 Footnote 2 (exemption language for operating below 32) to be applicable to R5. If the generator is exempt per the footnote, and therefore R2 and R3 are not applicable, what would be the training objective? It is imperative to ensure training is applicable to ensure focus of personnel and resources on highest priorities.

It is for this reason PG&E is voting NEGATIVE on the Standard ballot.

Likes 0	
Dislikes 0	

Response

Ruchi Shah - AES - AES Corporation - 5

Answer	
Document Name	

Comment

AES Clean Energy supports NAGF's comments. As mentioned in the response to Question 1, AES Clean Energy strongly recommends that the ERO develop an implementation guidance or a CMEP Practice Guide in collaboration with industry, particularly on the interpretations of each requirement as applicable to generator types. Ideally, this should be done by the proposed effective date of the standard to avoid inconsistent interpretation issues that may arise during CMEP engagements with industry after the effective date of EOP-012-2.

Additional comments:

- New sub-requirement: R1.2.1.3 Start-up issues
    - With the addition of new sub-requirements, will NERC consider including the same requirement in IRO-010 or TOP-003 as well? Currently, based on TOP-003-5 that became effective on 4/1/2023, there is no similar sub-requirement for BA and TOP to require similar data from GO/GOP. Therefore, addition of this sub-requirement in EOP-012-2 will lead to administrative work that may have no effect on reliability if it's not being requested or utilized. Although it is specified in the new TOP-002-5 R8 where it applies to the BA only, there is no corresponding requirement for the BA in TOP-003. It is only assumed that BA will need the data and list it in their data specification.
    - Recommend drafting team to include examples in Technical Rationale regarding "Start-up issues" and differentiate between synchronous generators and IBRs.
    - Reference to EOP-012-1 on page 9 of Technical Rationale – should it be changed to EOP-012-2?
        - *The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of **EOP-012-1** (October 1, 2027).*
    - *Technical Rationale for Generator Cold Weather Critical Component: With the exclusion language added for any component and/or system located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32F, there is room for interpretation by registered entities that this could include inverters and* battery energy storage systems (BESS). Typically, inverters and BESS are in containers and their temperatures are controlled via HVAC systems. We recommend the drafting team look into this and provide further details on what is considered "permanent building".

Likes 0	
Dislikes 0	

Response

Larry Heckert - Alliant Energy Corporation Services, Inc. - 4

Answer	
Document Name	

Comment

Alliant Energy supports the comments submitted by the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	
Document Name	

Comment

EEI provided a proposed comment here, however it does not affect Avista and is not a strong statement. I don't think we should include it here.

Likes 0	
Dislikes 0	

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	
Document Name	

Comment

MRO NSRF genuinely appreciates the hard work that the Standard Drafting Team has put into this drafting process. Their response to industry comments is a testament to the success of the Standard Drafting Process and MRO NSRF supports the approval of this draft based solely on the merits of the proposed language.

However, MRO NSRF is concerned about the addition of R1.2.1.3. We feel that this addition increases documentation burden but does not add any reliability value, additionally this issue would be handled by the CAP process if there are startup issues that are classified as Generator Cold Weather Reliability Events.

Likes 0	
Dislikes 0	

Response

Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments

Answer	
Document Name	

Comment

Black Hills Corporation supports EEI and NAGF additional comments.	
Likes 0	
Dislikes 0	
Response	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	
Document Name	
Comment	
AZPS has no additional comments.	
Likes 0	
Dislikes 0	
Response	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	
Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	
Document Name	
Comment	
AECI supports comments submitted by ACES.	

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	
Document Name	

Comment

It is unclear what is to be reported as R.1.2.1.3 “Start-up issues.” This should apparently be, “Normal start-up time(s), e.g. cold, warm and hot, and winter weather issues that can cause these times to be extended.” This need is particularly acute where the ISO does not allow declaring true start-up times, causing the market and regulatory criteria for identifying startup failures to be greatly different.

The reference to good utility practice in the Generator Cold Weather Constraint section of the Technical Rationale should be expunged. GO/GOPs in deregulated markets are not public utility companies, as confirmed in a recent landmark appeals court ruling (https://www.law.com/texaslawyer/2023/12/15/power-generator-companies-get-landmark-decision-in-winter-storm-uri-mdl/?slreturn=20240018071757).

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	
Document Name	

Comment

1. Remove the heated building exclusion from the definition of Generator Cold Weather Critical Component.

a. The expanded definition for Generator Cold Weather Critical Component is misleading and does not align with the explanation provided in the technical rationale document for EOP-012-2 or with statements made by the Project 2021-07 team during public webinars. From the technical rationale document and webinar comments, the intent was to exclude critical components inside buildings with dedicated building heating equipment. The new definition employs the phrase “heating source that regularly maintains the space”. This phrasing opens the definition to heating sources that are not devices dedicated to building heating.

b. Additionally, the new definition does not support equipment reliability. The exclusion is based on the idea that freeze protection in the form of a building and dedicated heating is already in place to protect critical equipment. By excluding these components, the new definition would also exclude the associated freeze protection measures from requirements R4.5 which requires annual maintenance on freeze protection measures for critical components. Requirement R4.5 mandates maintenance activities to ensure improved equipment reliability, prevent winter reliability events, and prevent CAP entries on events. Excluding buildings and their dedicated heating equipment from the requirements of R4.5 puts the industry at risk of more winter reliability events and does not align with operating experience events learned during Winter Storm Uri related to open doors, windows, etc.

2. Requirements R4 and R5 should state that stations with an ECWT above 32oF are exempt from requirements R4.3, R4.4, R4.5, and R5.

a. Stations with an ECWT above 32oF cannot meet the requirements of R4 and R5 based on the current definitions for a Generator Cold Weather Critical Component, a Generator Cold Weather Reliability Event, and the wording of requirements R4 and R5.

b. Requirement R4 establishes the minimum content requirements for a station’s Cold Weather Preparedness Plan. These minimums are:

i. R4.1: The station’s ECWT.

ii. R4.2: Stations information required in R1.2.

iii. R4.3: A list of Generator Cold Weather Critical Components.

iv. R4.4: A list of freeze protection measures on the Generator Cold Weather Critical Components.

v. R4.5: Annual inspection and maintenance of the identified freeze protection measures.

c. Requirement R5 requires the training of all maintenance or operations personal responsible for implementing the Cold Weather Preparedness Plan.

d. The only actionable item in R4 that can be implemented is requirement R4.5.

e. Per the current definitions for a Generator Cold Weather Critical Component and for a Generator Cold Weather Reliability Event,

i. Generator Cold Weather Reliability Events only occur at or above the ECWT.

ii. Generator Cold Weather Critical Components must be able to cause a Generator Cold Weather Reliability Event.

f. A station with an ECWT above 32oF cannot have a Generator Cold Weather Reliability Event since the freeze related event would need to occur at a temperature warmer than 32oF.

g. Since the station cannot identify any Generator Cold Weather Critical Components since they cannot meet the requirements of R4.3.

h. The station cannot meet the requirements of R4.4. If no Generator Cold Weather Critical Components exist, protection on those critical components cannot be identified.

i. If no freeze protection measures have been identified under R4.4, the station cannot perform annual inspection and maintenance on measures that do not exits. This means the stations cannot meet the requirements of R4.5.

j. If R4.5 is the only actionable part of requirement R4, stations with an ECWT above 32oF cannot identify the maintenance and operations personnel who implement the actionable items in the plan if no actionable items exist under R4.5. Stations with an ECWT above 32oF cannot meet R5 since the training audience as defined in R5 does not exist

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	
Document Name	

Comment

None.

Likes 0	
Dislikes 0	

Response

James Keele - Entergy - 3

Answer	
Document Name	

Comment

R1.2.1.3 - The term “start-up issues” is vague and not clearly defined in the standard.

R1.2.2 - The phrase “concurrent wind speed and precipitation” appears to be optional in the 1st two instances but required in the 3rd option. Was this the intent?

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	
Document Name	

Comment

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Julie Hall - Entergy - 6, Group Name Entergy

Answer	
Document Name	

Comment	
R1.2.1.3 - The term “start-up issues” is vague and not clearly defined in the standard. R1.2.2 - The phrase “concurrent wind speed and precipitation” appears to be optional in the 1st two instances but required in the 3rd option. Was this the intent?	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	
Document Name	
Comment	
NA	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	
Document Name	
Comment	
AEP recommends revising the Technical Rationale document to provide detail-of and reasoning-behind the “12 continuous hours” language used in the first and second bullets of R2. Any insight behind exactly what that phrase contributes, and how, would be beneficial.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	
Document Name	

Comment
Constellation has no additional comments. Kimberly Turco on behalf on Constellation segements 5 and 6

Likes 0	
Dislikes 0	

Response

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments

Project Name:	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Draft 3 EOP-012-2
Comment Period Start Date:	1/10/2024
Comment Period End Date:	1/22/2024
Associated Ballot(s):	2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll AB 3 NB 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 AB 3 ST 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 AB 3 OT

There were 63 sets of responses, including comments from approximately 175 different people from approximately 118 companies representing 10 of the Industry Segments as shown in the table on the following pages.

All comments submitted can be reviewed in their original format on the project page.

If you feel that your comment has been overlooked, let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, contact Vice President of Engineering and Standards, Soo Jin Kim (via email) or at (404) 446-9742.

Questions

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

2. As opposed to staggering, the SDT chose to shorten the time frame in the implementation plan for the standard as a whole. The SDT responded to industry comments with concerns that staggering did not need to be explicitly required as this will happen naturally due to outage scheduled and resource availability. Do you agree with this approach?

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

3. Based on industry comments that constraints are expected to be rare and the conditions that drive them will not change frequently, the SDT moved from an annual to a 5-year review. Do you agree with this change?

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

4. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. After reviewing the comments on the previous posting, the team determined to not change the timeframe in the posted implementation plan for reasons explained in the Consideration of Comments. If you have any further comments, please provide them here.

5. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.

6. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

The Industry Segments are:

1 — Transmission Owners

2 — RTOs, ISOs

3 — Load-serving Entities

4 — Transmission-dependent Utilities

5 — Electric Generators

6 — Electricity Brokers, Aggregators, and Marketers

7 — Large Electricity End Users

8 — Small Electricity End Users

9 — Federal, State, Provincial Regulatory or other Government Entities

10 — Regional Reliability Organizations, Regional Entities

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
BC Hydro and Power Authority	Adrian Andreoiu	1	WECC	BC Hydro	Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
MRO	Anna Martinson	1,2,3,4,5,6	MRO	MRO Group	Shonda McCain	Omaha Public Power District (OPPD)	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
					Jay Sethi	Manitoba Hydro (MH)	1,3,5,6	MRO
					Husam Al-Hadidi	Manitoba Hydro (System Preformance)	1,3,5,6	MRO
					Kimberly Bentley	Western Area Power Adminstration	1,6	MRO

					Jaimin Patal	Saskatchewan Power Coporation (SPC)	1	MRO
					Angela Wheat	Southwestern Power Administration	1	MRO
					George Brown	Pattern Operators LP	5	MRO
					Larry Heckert	Alliant Energy (ALTE)	4	MRO
					Terry Harbour	MidAmerican Energy Company (MEC)	1,3	MRO
					Dane Rogers	Oklahoma Gas and Electric (OG&E)	1,3,5,6	MRO
					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
					Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Michael Ayotte	ITC Holdings	1	MRO
					Andrew Coffelt	Board of Public Utilities- Kansas (BPU)	1,3,5,6	MRO
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF

					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
Southern Company - Southern Company Services, Inc.	Colby Galloway	1,3,5,6	MRO,RF,SERC,Texas RE,WECC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					Leslie Burke	Southern Company - Southern Company Generation	5	SERC
Dane Rogers	Dane Rogers			OG&E	Terri Pyle	OGE Energy - Oklahoma Gas and Electric Co.	1	MRO

					Donald Hargrove	OGE Energy - Oklahoma Gas and Electric Co.	3	MRO
					Patrick Wells	OGE Energy - Oklahoma Gas and Electric Co.	5	MRO
					Ashley F Stringer	OGE Energy - Oklahoma Gas and Electric Co.	6	MRO
Santee Cooper	Don Cribb	5		Santee Cooper	Paul Camilletti	Santee Cooper	1,3,5,6	SERC
					Domenic Ciccolella	Santee Cooper	1,3,5,6	SERC
ACES Power Marketing	Jodirah Green	1,3,4,5	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Scott Brame	North Carolina Electric Membership Corporation	3,4,5	SERC
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Amber Skillern	East Kentucky Power Cooperative	1	SERC
					Nick Fogleman	Prairie Power, Inc.	1,3	SERC

					Austin Towne	Western Farmers Electric Cooperative	1,5	Texas RE
					Scott Berry	Wabash Valley Power Association	3	RF
					Jordan Mcclellan	Southern Illinois Power Cooperative	1	SERC
Entergy	Julie Hall	6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC
Electric Reliability Council of Texas, Inc.	Kennedy Meier	2		ISO/RTO Council Standards Review Committee (SRC)	Bobbi Welch	Midcontinent ISO, Inc.	2	RF
					Darcy O'Connell	California ISO	2	WECC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Kennedy Meier	Electric Reliability Council of Texas, Inc.	2	Texas RE
					Joshua Phillips	Southwest Power Pool, Inc. (RTO)	2	MRO

					Thomas Foster	PJM Interconnection, L.L.C.	2	RF
					Helen Lainis	Independent Electricity System Operator	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy-FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Michael Johnson	Michael Johnson		WECC	PG&E All Segments	Marco Rios	Pacific Gas and Electric Company	1	WECC
					Sandra Ellis	Pacific Gas and Electric Company	3	WECC

					Frank Lee	Pacific Gas and Electric Company	5	WECC
Black Hills Corporation	Rachel Schuldt	6		Black Hills Corporation - All Segments	Micah Runner	Black Hills Corporation	1	WECC
					Josh Combs	Black Hills Corporation	3	WECC
					Rachel Schuldt	Black Hills Corporation	6	WECC
					Carly Miller	Black Hills Corporation	5	WECC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC
					Jeffrey Streifling	NB Power Corporation	1	NPCC
					Michele Tondalo	United Illuminating Co.	1	NPCC
					Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
					Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
					Randy Buswell	Vermont Electric Power Company	1	NPCC

					James Grant	NYISO	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
					Randy MacDonald	New Brunswick Power Corporation	2	NPCC
					Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
					David Burke	Orange and Rockland	3	NPCC
					Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
					Salvatore Spagnolo	New York Power Authority	1	NPCC
					Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
					David Kwan	Ontario Power Generation	4	NPCC

					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Sean Cavote	PSEG	4	NPCC
					Jason Chandler	Con Edison	5	NPCC
					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					Joshua London	Eversource Energy	1	NPCC
Western Electricity Coordinating Council	Steven Rueckert	10		WECC Entity Monitoring	Steve Rueckert	WECC	10	WECC
					Phil O'Donnell	WECC	10	WECC
Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC

					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC
					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC
Associated Electric Cooperative, Inc.	Todd Bennett	3		AECI	Michael Bax	Central Electric Power Cooperative (Missouri)	1	SERC
					Adam Weber	Central Electric Power Cooperative (Missouri)	3	SERC
					Gary Dollins	M and A Electric Power Cooperative	3	SERC

					William Price	M and A Electric Power Cooperative	1	SERC
					Olivia Olson	Sho-Me Power Electric Cooperative	1	SERC
					Mark Ramsey	N.W. Electric Power Cooperative, Inc.	1	SERC
					Heath Henry	NW Electric Power Cooperative, Inc.	3	SERC
					Tony Gott	KAMO Electric Cooperative	3	SERC
					Micah Breedlove	KAMO Electric Cooperative	1	SERC
					Brett Douglas	Northeast Missouri Electric Power Cooperative	1	SERC
					Skyler Wiegmann	Northeast Missouri Electric Power Cooperative	3	SERC
					Mark Riley	Associated Electric Cooperative, Inc.	1	SERC

					Brian Ackermann	Associated Electric Cooperative, Inc.	6	SERC
					Chuck Booth	Associated Electric Cooperative, Inc.	5	SERC
					Jarrod Murdaugh	Sho-Me Power Electric Cooperative	3	SERC

See the unofficial comment form for additional information:
https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

1. To address the P66 directive, the SDT removed the three examples contained in the proposed definition of Generator Cold Weather Constraint and revised the definition. Do you agree that the revised definition of Generator Cold Weather Constraint provides sufficient clarity to the requirements in EOP-012-2, and is auditable? If you do not agree, please provide your recommended language.

Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf on Constellation segements 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	

Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Paragraph 88 directed NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet. Such an approach will reduce reliability risks more quickly.	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	

FirstEnergy supports this change to the proposed definition of Generator Cold Weather Constraint.	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Avista & EEI agree the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.	

Likes 0	
Dislikes 0	

Response

The SDT thanks you for your support.

Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group
Name OG&E

Answer	Yes
Document Name	

Comment

OG&E supports comments submitted by MRO NSRF.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, please see response to MRO NSRF.

Andrew Smith - APS - Arizona Public Service Co. - 5

Answer	Yes
Document Name	

Comment

AZPS has no additional comments.

Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	Yes
Document Name	
Comment	
Black Hills Corporation supports NAGF comments, specifically regarding consistency in auditing as this requirement is not easily “measurable”.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to NAGF.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF agrees that the revised definition provides sufficient clarity and is auditable.	
Likes 0	
Dislikes 0	
Response	

The SDT thanks you for your support.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista & EEI agree the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	

Answer	Yes
Document Name	
Comment	
NRG believes the changes generally address the issues raised by industry. NRG agrees with NAGF that there is still the potential for varying interpretation across regions. NERC will need to ensure that the regions are all applying the standard consistently across the continent.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
NRG believes the changes generally address the issues raised by industry. NRG agrees with NAGF that there is still the potential for varying interpretation across regions. NERC will need to ensure that the regions are all applying the standard consistently across the continent.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E agrees with the revised definition and supports NAGF comments regarding implementation of this definition.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments, please see response to NAGF.	
Megan Melham - Decatur Energy Center LLC - 5	
Answer	Yes
Document Name	
Comment	
We believe the changes made address the issues raised by industry. However, there is still a great deal of potential interpretation. NERC will need to ensure that the regions are all implementing the audit process consistently across the nation. There are already issues arising due to auditors not interpreting areas of EOP-011 consistently. While this issue is not specific to EOP-011 or the future EOP-012, NERC must address the issue as it related to these standards if we are going to continue to develop standards quickly instead of taking the time necessary to address areas where the “measurement” is not a simple equation.	
Likes 0	
Dislikes 0	
Response	

The SDT thanks you for your support.	
Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern agrees with EEI's comments such that the current draft is reasonable and provides sufficient clarity for audibility.	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
The NAGF believes the changes made address the issues raised by industry. However, there is still a great deal of potential interpretation. NERC will need to ensure that the regions are all implementing the audit process consistently across the nation. There are already issues arising due to auditors not interpreting areas of EOP-011 consistently. While this issue is not specific to EOP-011 or the future EOP-012, NERC must address the issue as it related to these standards if we are going to continue to develop standards quickly instead of taking the time necessary to address areas where the "measurement" is not a simple equation.	
Likes 0	
Dislikes 0	

Response	
The SDT appreciates your comments. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Per North American Generator Forum comments, auditors will need guidance to enforce EOP-012 in a consistent manner.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	Yes
Document Name	
Comment	
Arevon agrees with NAGF Comments. The changes made address the issues raised by industry. However, there is still remains a great deal of potential interpretation. NERC will need to ensure that the regions are implementing the audit process consistently across the nation. There are already issues with auditors' inconsistent interpretations of EOP-011. While this issue is not specific to EOP-011 or the future EOP-012, NERC must address the issue as it related to these standards if we are going to continue to develop standards quickly instead of taking the time necessary to address areas where the "measurement" is not a simple equation.	
Likes 0	

Dislikes 0	
Response	
The SDT thanks you for your support. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI agrees the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy agrees that the revised definition provides sufficient clarity and is auditable.	
Likes 0	
Dislikes 0	
Response	

The SDT thanks you for your support.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
LS Power Development supports the NAGF comments & positions.	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute” EEI agrees the proposed definition of Generator Cold Weather Constrains provides sufficient clarity to allow EOP-012-2 to be auditable.	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
The SDT thanks you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	

Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Rhonda Jones - Invenergy LLC - 5,6	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
The SDT thanks you for your support.	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
The SDT thanks you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	

Document Name	
Comment	
Texas RE is concerned the phrase "acceptable practices, methods, or technologies" is vague and could lead to inconsistent application of the definition of Generator Cold Weather Constraint.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker's conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro	
Answer	
Document Name	
Comment	
BC Hydro appreciates the drafting team's efforts to include specific criteria to define the Generator Cold Weather Constraint, and believes that it is an improvement from the previous draft. The use of words such as "generally", "broadly", "may", or "reasonable" however may not be conducive to measurable expectations at audit. BC Hydro suggests that the second sentence in the third bullet ("A cost may be deemed "unreasonable" when implementation of selected	

freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.") is an example that would be better suited in the Technical Rationale or other guidance document rather than definition itself	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker's conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Romel Aquino - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Donald Lock - Talen Generation, LLC - 5	

Answer	NNo
Document Name	
Comment	

The criterion, “Were not broadly implemented,” may disincentivize the development and adoption of emerging winterization technologies, despite the statement in the Technical Justification that the SDT has the opposite intention.

The expression, “reasonable cost consistent with good business practices,” can be widely interpreted, including as deeming all existing plants to be acceptable since they were winterized per the cost-effectiveness business practices of the owner. If good business practices is intended to mean something different it will have to be spelled-out.

Rather than continue to adjust semantics, however, the appropriate path forward is to set explicit winterization criteria for new facilities, update this list as new technologies become proven, and urge FERC to support reimbursement of owners of existing plants for retrofits to avoid freeze-up. The only mandatory action for existing plants should be to identify the dry bulb temperature, wind chill temperature and precipitation conditions under which forced outages and derates may occur, so that ISOs can determine the appropriateness of funding retrofits in their areas.

The historical records necessary for identifying the proven wind chill capability of a plant are easily obtained. Just download DBT and wind speed readings when pulling ECWT data from the NOAA website, then add a column for applying the wind chill formula.

Above all else, good business practices require that winterization capabilities mandated in EOP-012 must be done right the first time, nor should the goalposts move about over the years, ref. our responses for Question 5 below.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker’s conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to

market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	NNo
Document Name	
Comment	
AECI supports comments submitted by ACES.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to ACES.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	NNo
Document Name	
Comment	
AES Clean Energy supports the comments provided by NAGF. While AES Clean Energy appreciates the improvements made by the drafting team on the definition, there remains opportunities for potential interpretations by ERO CMEP staff. As stated by NAGF, GOs and GOPs currently are experiencing inconsistent interpretations of EOP-011-2 requirements during CMEP engagements across the United States. This revised definition of Generator Cold Weather Constraints may create mis-alignment between industry's interpretation of reliability as opposed to reliability expectations by the ERO CMEP Staff. There is also lack of understanding from the Regional Entities on renewable generation resources and application of the Standard requirements to these resources. We strongly recommend that NERC develops an implementation guidance with industry trade groups	

or create a CMEP Practice Guide that reflects the expectations by both industry and ERO CMEP staff during CMEP engagements with industry stakeholders.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	NNo
Document Name	

Comment

AEPC has signed on to ACES comments:

We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however, we have grave concerns with the currently proposed definition of "Generator Cold Weather Constraint". It is our opinion that the proposed language lacks objective auditable criteria. We believe that, as written, the proposed definition contains several undefined terms and phrases that are not auditable without further definition and/or clarification. We take specific issue with the following words and phrases contained within the definition:

- "reasonable"
    - We have great uneasiness with the repeated use of the word "reasonable". We fear that the use of this word in a NERC Reliability Standard will potentially lead to inconsistent application throughout the various NERC regions. For instance, who is the responsible party that will determine whether something is "reasonable" or not? Should it be up to the discretion of each individual auditor to make a determination as to what is or is not "reasonable"? While the phrase "reasonable" may have some precedent in a court of law, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME's may not be, nor are expected to be, lawyers. Thus, we recommend removing this word altogether.
- "broadly implemented"

  - What is the objective metric that will be used to determine which practices, methods, or technologies have been “broadly implemented”? Will NERC maintain a list of all freeze protection measures implemented at all generating stations and if so, what is the threshold whereby any given freeze protection measure will be considered “broadly implemented”?
- “regions that experience similar winter climate conditions”
  - How, and by whom, will a boundary be determined for the various so-called “regions”? Additionally, what is the metric for determining what constitutes “similar winter climate conditions”? It is our understanding that part of the basis for utilizing a statistical model for the “Extreme Cold Weather Temperature” definition was to provide clarity to the Generator Owner on determining what temperature triggers the requirement obligations. Furthermore, it is our understanding that this statistical approach was utilized as each generating station may very well experience unique winter climate conditions. In light of this well-reasoned statistical approach, we find it perplexing that such a subjective metric was utilized for this criteria of “Generator Cold Weather Constraint”.
- “prohibitively expensive” and “significant expenditures”
  - While we appreciate the attempt made by the SDT to provide clarification on this matter, we have apprehension with these phrases because there is no objectively defined threshold for determining when costs are to be considered “unreasonable”. For example, a large investor-owned utility (“IOU”) has substantially more resources than a small electric cooperative. What may be a relatively minor expenditure to one could be “prohibitively expensive” or a “significant expenditure” to the other. We recommend that this criteria be modified to include a fixed metric utilizing a defined cost threshold. It is our opinion that this can best be expressed as a percentage of annual Operation and Maintenance (“O&M”) costs during the meteorological winter months.

We recommend using the following language:

Generator Cold Weather Constraint - Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using one or more of the criteria below:

- Warranties that would be voided by application of a freeze protection measure(s).
- Reduction in summer capability.
- Decreases the reliability of the unit(s).
- Introduces an increased personnel or safety risk.
- Introduces a risk of noncompliance with environmental regulation(s).
- Compromised ability to provide ancillary service(s)

• No known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technology(ies), or existing technology(ies) in a new application(s). • The cost to implement a new, or modify an existing, freeze protection measure(s) exceeds five percent (5%) of the generating station's most recent 5-year average Operation and Maintenance ("O&M") costs during meteorological winter months.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker's conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	NNo
Document Name	
Comment	
PNM would recommend removing the first criteria bullet point "Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy" as it contradicts the second and third bullet point in the EOP-012-2 standard.	
Likes 0	
Dislikes 0	
Response	

The SDT appreciates your comment but is concerned that removing the first bullet could potentially result in a scenario where any freeze protection measure that gets successfully piloted may be inferred to be then required for all Generator Owners.

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	NNo
Document Name	

Comment

WECC understands the need to expeditiously complete this project, and therefore will be casting an affirmative vote. We do not to have perfect get in the way of good. However, WECC still has some suggestions that would improve the standard and therefore provides the following for the drafting team to consider, either now or in the future if the standard is revisited.

The criteria provided are broad and may very well be implemented inconsistently. Items that will be a constant question by industry to the ERO Enterprise will be similar in nature to the followingis considered prohibitively expensive modifications? Significant expenditures?
Minimal remaining life?

Perhaps Implementation Guidance can be generated that clearly illustrates the intent of the SDT. Industry should not be asking <span style="user-select: text;-webkit-user-drag: none;-webkit-tap-highlight-color: transparent; background-image:var(--urlContextualSpellingAndGrammarErrorV2, url(" data:image=""
svg+xml;base64,pd94bwwgdmvyc2lvbj0ims4wiiblbmnvzgluzz0ivvrgltgipz4kphn2zyb3awr0ad0inxb4iibozwlnahq9ijnwecigdmlld0jved0imcawidugmyigdmvyc2lvbj0ims4xiib4bwxucz0iahr0cdovl3d3dy53my5vcmcvmjawmc9zdmciihhtbg5zonhsaw5rpsjodhrwoi8vd3d3lnczlm9yzy8xotk5l3hsaw5rij4kicagidwhls0gr2vuzxjhdg9yoibta2v0y2ggntuumiaonzgxodepic0gahr0chm6ly9za2v0y2hhchauy29tic0tpgogicagphrpdgxlpmdyyw1tyxjfzg91ymxlx2xpbmu8l3rpdgxlpgogicagpgrlc2m+q3jlyxrlzcb3axroifnrzxrjac48l2rlc2m+ciagica8zybpzd0iz3jhbw1hcl9kb3vibgvfbgluzsigc3ryb2tlpsjub25liibzdhjva2utd2lkdgg9ijeiigzpbgw9im5vbmuiigzpbgwtcnvszt0izxzlbm9kzcigc3ryb2tllwxpbmvjyxa9injvdw5kij4kicagicagica8zybpzd0ir3jhbw1hci1uawxllunvchkiihn0cm9rzt0iizmzntvgrii+ciagicagicagicagidxwyxroigq9ik0wldaunsbmnswwljuiiglkpsjmaw5lltitq29wes0xmci+pc9wyxropgogicagicagicagica8cgf0acbkpsjnmcwyljugtdusmi41iibpzd0itgluzs0ylunvchktmteipjwvcgf0ad4kicagicagica8l2c+ciagica8l2c+cjwvc3znpg="='));" border-bottom:transparent;background-position-x:0%;background-position-y:100%'="">the ERO Enterprise what they
consider the above terms mean. As is, the auditing of these details will result in no meaningful result outside of freeze protection measures not being implemented based on criteria that will be used inconsistently by Generator Owners. If the language remains, a

Generator Owner will need to support each Generator Cold Weather Constraint with what they considered as criteria which, per FERC, will be submitted to FERC in some fashion.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker's conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	NNo
Document Name	
Comment	
We agree with some comments provided by ACES, AEPC, and Talen but are not going to restate each item specifically.	
Likes 1	LS Power Development, LLC, 5, Campbell C. A.
Dislikes 0	
Response	
The SDT appreciates your comments and notes that the majority of commenters do not concur with your comment. A reasonableness standard is often a benchmark used in court when reviewing the decisions made by a particular party. The reasonableness standard is a test that asks whether the decisions made were legitimate and designed to remedy a certain issue under the circumstances at the time. The SDT team has discussed at length the proposed approach of listing each representative item that could lead to a declaration within	

the standard and has determined not to proceed down the path for a myriad of reasons (i.e. who will maintain and update the list over time, to the extent a specific freeze protection measure does not meet a discrete item on the list, does this mean it can't be included in a declaration)	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	NNo
Document Name	
Comment	
Proposed language is still open to audit interpretation (insufficient clarity due to undefined terms).	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker's conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.	
Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	NNo
Document Name	
Comment	
We at ACES appreciate the effort put forth by the SDT to comply with the FERC order; however, we have grave concerns with the currently proposed definition of "Generator Cold Weather Constraint". It is our opinion that the proposed language lacks objective	

auditable criteria. We believe that, as written, the proposed definition contains several undefined terms and phrases that are not auditable without further definition and/or clarification. We take specific issue with the following words and phrases contained within the definition:

- “reasonable”
    - We have great uneasiness with the repeated use of the word “reasonable”. We fear that the use of this word in a NERC Reliability Standard will potentially lead to inconsistent application throughout the various NERC regions. For instance, who is the responsible party that will determine whether something is “reasonable” or not? Should it be up to the discretion of each individual auditor to make a determination as to what is or is not “reasonable”?
    - While the phrase “reasonable” may have some precedent in a court of law, NERC audits are not a court of law. Furthermore, auditors and Registered Entity SME’s may not be, nor are expected to be, lawyers. Thus, we recommend removing this word altogether.

- “broadly implemented”
    - What is the objectve metric that will be used to determine which practices, methods, or technologies have been “broadly implemented”? Will NERC maintain a list of all freeze protection measures implemented at all generating stations and if so, what is the threshold whereby any given freeze protection measure will be considered “broadly implemented”?

- “regions that experience similar winter climate conditions”

    - How, and by whom, will a boundary be determined for the various so-called “regions”? Additionally, what is the metric for determining what constitutes “similar winter climate conditions”? It is our understanding that part of the basis for utilizing a statistical model for the “Extreme Cold Weather Temperature” definition was to provide clarity to the Generator Owner on determining what temperature triggers the requirement obligations. Furthermore, it is our understanding that this statistical approach was utilized as each generating station may very well experience unique winter climate conditions. In light of this well-reasoned statistical approach, we find it perplexing that such a subjective metric was utilized for this criteria of “Generator Cold Weather Constraint”.

- “prohibitively expensive” and “significant expenditures”
    - While we appreciate the attempt made by the SDT to provide clarification on this matter, we have apprehension with these phrases because there is no objectively defined threshold for determining when costs are to be considered “unreasonable”. For example, a large investor-owned utility (“IOU”) has substantially more resources than a small electric

cooperative. What may be a relatively minor expenditure to one could be "prohibitively expensive" or a "significant expenditure" to the other. We recommend that this criteria be modified to include a fixed metric utilizing a defined cost threshold. It is our opinion that this can best be expressed as a percentage of annual Operation and Maintenance ("O&M") costs during the meteorological winter months.

We recommend using the following language:

Generator Cold Weather Constraint - Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using one or more of the criteria below:

- Warranties that would be voided by application of a freeze protection measure(s).
- Reduction in summer capability.
- Decreases the reliability of the unit(s).
- Introduces an increased personnel or safety risk.
- Introduces a risk of noncompliance with environmental regulation(s).
- Compromised ability to provide ancillary service(s)
- No known technical solution for addressing the issue or implementation of suitable freeze protection measure(s) requires application of new technology(ies), or existing technology(ies) in a new application(s).
- The cost to implement a new, or modify an existing, freeze protection measure(s) exceeds five percent (5%) of the generating station's most recent 5-year average Operation and Maintenance ("O&M") costs during meteorological winter months.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker's conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	NNo
Document Name	
Comment	

The **ISO/RTO Council (IRC) Standards Review Committee (SRC)** (consisting, for purposes of these comments, of CAISO, ERCOT, IESO, ISO-NE, PJM, MISO, NYISO, and SPP) does not believe that the revised **Generator Cold Weather Constraint (GCWC)** definition is sufficiently clear or auditable. Specifically, the SRC is concerned that the language regarding freeze protection measures is faulty, that the reference to “the decision” in the definition is unclear, and that the language regarding unreasonable costs is inherently subjective and unauditable. The SRC therefore believes that the revised GCWC definition does not fully meet FERC’s directive that EOP-012-2 “include auditable criteria on permissible constraints,” as stated in paragraph 66 of FERC’s February 16, 2023 Order.

It is the SRC’s understanding that the intent of the phrase “[f]reeze protection measures are not intended to refer to optimum practices, methods, or technologies” is to avoid placing an undue burden on Generator Owners by indicating that they are not obligated to implement novel and untested freeze protection measures that may ultimately prove to be ineffective. Unfortunately, this language does not convey this intent and could be understood to mean that optimum practices *never* qualify as freeze protection measures, which seems to run counter to the overall project goal of improving generator preparations for extreme cold weather events.

The SRC further understands that the SDT’s intent is to model this portion of the GCWC definition on the definition of Good Utility Practice found in section 1.15 of FERC’s Pro Forma Open Access Transmission Tariff (OATT). However, the SDT’s proposed GCWC definition does not fully match the corresponding language in the OATT, which reads in pertinent part as follows: “Good Utility Practice is not intended *to be limited to* the optimum practice, method, or act *to the exclusion of all others*, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4)” (emphasis added). If the SDT intends to model the GCWC definition on the OATT definition, the SRC recommends that the GCWC definition be revised to more accurately capture the drafting team’s intent by better aligning it with the language used in the Pro Forma OATT as follows: “Freeze protection measure are not intended to **be limited** to optimum practices, methods, or technologies **to the exclusion of all others**, but **are also intended to include** acceptable practices, methods, or technologies . . . .” The SRC notes that as an alternative, the drafting team could remove the reference to “optimum practices, methods, or technologies” altogether, which would more clearly indicate that “acceptable practices, methods, and technologies . . .” is the core of the definition.

The SRC is also concerned that the reference to “acceptable practices, methods, or technologies **generally implemented** by the electric industry in areas that experience similar winter climate conditions” (emphasis added) does not provide an objective standard that can be effectively audited and fails to account for the real-world effectiveness (or lack thereof) of the freeze protection measures implemented, which is inappropriate for a standard designed to address weatherization failures. In addition, the SRC is concerned that this definition does not provide sufficient guidance on how widely a freeze protection technology must be deployed before it will be considered a “generally implemented” technology. Given the typical pace of change within the electric utility industry, it may take years for a new technology to be adopted widely enough to be considered “generally implemented.” The SRC is concerned that this, coupled with the five-year review period for GCWC declarations (as further detailed in the SRC’s response to question 3 below), will serve to delay and disincentivize the adoption of effective freeze protection technologies that happen to be new. To address these concerns, the SRC recommends that this language be revised to read “practices, methods, or technologies **that would reasonably be expected to result in effective facility performance while operating at the Extreme Cold Weather Temperature (ECWT)**.”

Next, the definition currently references “the facts known at the time the decision was made.” It is the SRC’s understanding that the decision referred to is the decision to declare a GCWC. However, the language as currently drafted could also be construed to refer to decisions made at the time a generation facility was designed, constructed, or commissioned. Therefore, the SRC recommends that this portion of the definition be clarified by revising it to read “the facts known at the time the decision **to declare a Generator Cold Weather Constraint** was made . . . .”

Finally, the SRC is concerned that the reasonable cost criteria for determining whether a cost-based GCWC can be declared are subjective and unauditable. Interpretation of the proposed reasonable cost criteria is likely to vary widely from entity to entity and from region to region, as a merchant generator and a rate-regulated investor-owned vertically integrated utility are likely to arrive at very different conclusions regarding what constitutes a “prohibitively expensive modification,” a “significant expenditure,” or “minimal remaining life” given the differing regulatory regimes and obligations applicable to each type of entity. The definition also lacks guidance that auditors can apply uniformly and consistently when confronted with differing interpretations in the course of reviewing GCWC declarations. The SRC therefore believes the proposed reasonable cost criteria for determining whether a GCWC can be declared do not address FERC's concerns regarding the ambiguity of constraint declarations, as discussed in paragraph 6 of FERC's February 16, 2023 Order.

This inherent subjectivity would effectively allow Generator Owners to declare a GCWC simply by asserting that implementing a given freeze protection measure would constitute a "prohibitively expensive modification[]" or a "significant expenditure[]," and that the affected facility has "minimal remaining life." This, combined with the auditability challenges discussed in the preceding paragraph, means that GCWCs could easily be used excessively, effectively resulting in EOP-012-2 failing to meet FERC's directive to "capture[] all bulk electric system generation resources needed for reliable operation and exclude[] only those generation resources not relied upon during freezing conditions" as required by paragraph 58 of FERC's February 16, 2023 Order. This risk could be mitigated through the use of objective, auditable criteria for cost-based GCWC declarations, or at the very least through the use of a process and analysis akin to the review and approval process for Technical Feasibility Exceptions under Appendix 4D of the NERC Rules of Procedure (particularly the Regional Entity preapproval process in section 3.0 of Appendix 4D).

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments. A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker's conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market. The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC's responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.

The SDT made the following changes to the standard per SRC recommendations: "Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made.."

The Technical Feasibility Exception is exclusive to the CIP Reliability Standards. The standard drafting team considered the suggestion but believe the above definition was sufficient and would not recommend that NERC create a sperate administrative process.

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	NNo
Document Name	

Comment

NO.   We agree with some comments provided by ACES, AEPC, and Talen but are not going to restate each item specifically.

Likes 0	
Dislikes 0	

Response

The SDT appreciates your comments.   A reasonableness standard is often a benchmark used in a legal setting when reviewing decisions. The reasonableness standard is typically an objective test that looks at the average decision maker’s conduct under the particular facts and circumstances present and if they exercised average care, skill, and judgement. The SDT considered adding specific criteria, but is of the opinion that the standard must be adaptable as facts and circumstances change and new solutions are identified and brought to market.   The last half of the constraint definition refers to "unreasonable costs" as requiring cost-prohibitive modifications or significant expenditures that could lead to premature retirement of equipment. The SDT agrees with NAGF comments regarding NERC’s responsibility to ensure consistent interpretation of the constraint definition in all regions and across all resource types.

See the unofficial comment form for additional information: **https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx**

2. As opposed to staggering, the SDT chose to shorten the time frame in the implementation plan for the standard as a whole. The SDT responded to industry comments with concerns that staggering did not need to be explicitly required as this will happen naturally due to outage scheduled and resource availability. Do you agree with this approach?

Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
NO. It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	
Thank you for the comment. The SDT believes that the Standard will allow generators to make cost effective compliance decisions based upon their own analyses.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	

We agree with the elimination of staggering, and we do not agree with the shorten timeframe.	
Likes 0	
Dislikes 0	
Response	
The SDT is responding to the directive from FERC to implement the standard in a timelier fashion and therefore, is not increasing the implementation timeframe from that published in the most recent proposed revisions to the standard.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
It should not be implemented as currently drafted and until a cost vs reliability benefit analysis is provided.	
Likes 0	
Dislikes 0	
Response	
Thank you for the comment. The SDT believes that the Standard will allow generators to make cost effective compliance decisions based upon their own analyses.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	

Reclamation agrees in removing the staggering approach from the previous redline, however does not agree with the new implementation dates and recommends remaining with EOP-012-1 original dates.	
Likes 0	
Dislikes 0	
Response	
The SDT is responding to the directive from FERC to implement the standard in a timelier fashion and therefore, is not increasing the implementation timeframe from that published in the most recent proposed revisions to the standard.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
The proposed implementation time frame is too short.	
Likes 0	
Dislikes 0	
Response	
The SDT is responding to the directive from FERC to implement the standard in a timelier fashion and therefore, is not increasing the implementation timeframe from that published in the most recent proposed revisions to the standard.	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	

"See comments submitted by the Edison Electric Institute" EEI supports the modifications made to the EOP-012 Implementation Plan. *In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.*	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	
Comment	
LS Power Development supports NAGF comments & positions.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes

Document Name	
Comment	
NV Energy agrees with the approach taken by the Standard Drafting Team to address this issue.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the modifications made to the EOP-012 Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	Yes
Document Name	
Comment	

Arevon agrees with NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
The NAGF supports the proposed implementation schedule.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	Yes
Document Name	
Comment	
Ameren believes It will be difficult to implement freeze protection measures within the specified timeframe. It is not clear what requirements are going to be effective this year or how implementation will be phased in.	

Likes 0	
Dislikes 0	
Response	
The SDT believes that the Implementation schedule is adequately clear and did not make any adjustments to the schedule. A compliance timeline is available in the January 11, 2024 webinar slide deck which can be found on the NERC website.	
Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern agrees with EEI that the current implementation plan is sufficient to address the concerns with staggering and the shortened time frame accomplishes the desire by the FERC directive.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM and TNMP agree with new implementation dates in the implementation plan.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E supports the approach.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista agrees with these comments and the EEI comments. EEI supports the modifications made to the EOP-012 Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF agrees with the approach taken by the Standard Drafting Team to address this issue. *In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.*	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees with this approach.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
There are still concerns from a budgetary, labor and/or parts constraints to obtain the objective.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	

Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	Yes
Document Name	
Comment	
AECI supports comments submitted by ACES.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes

Document Name	
Comment	
Avista agrees with these comments and the EEI comments. EEI supports the modifications made to the EOP-012 Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	

FirstEnergy supports the EOP-012-2 Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
In P 64 of the FERC order, the Commission expressed concern that a generator owner may make a constraint declaration without informing planning and operational entities (e.g., the balancing authority) that are expecting the reliable operation of the generating unit to its Extreme Cold Weather Temperature. To address this concern, the SDT has developed R8 to require the GO to update the generating unit's data specification regarding operational limitations to the generator unit's capability and availability under R1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	

Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf on Constellation segements 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Megan Melham - Decatur Energy Center LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	

Same comment about consideration as above.

Shortening the Implementation Plan is appropriate but no changes were made outside the removal of the “staggering” language. As is, existing units will still have an additional year to comply per the Implementation Plan for R3. Just so there is not future debate on the expectations for ECWT calculation expectations- Is it the SDT clearly indicating that units (existing **and new** moving forward) will require a ECWT day 1 of applicability to EOP-012-2? In consideration of comments the SDT repeatedly indicated “The ECWT is based on the location of the proposed unit and **can** be calculated prior to operation at which time the ability to operate at the ECWT will be required.” While the statement is correct there needs to be clarity provided by the SDT because R1 defines a periodic review not an establishment of initial performance. And the Initial Performance language provided in the Implementation Plan only addresses **existing units** and their review expectations. Disagreements on applicability of R1 for new units upon COD will result if clarity is not provided. Please state with utmost clarity that ECWT is to be calculated prior to COD to eliminate misunderstandings or further delay of improvements to reliable operations during extreme weather for units that will be considered “new” after the effective date of EOP-012 is passed. If an initial performance period to establish an ECWT is not defined, per past Enforcement proceedings, an entity will have the periodic time period stated in the Requirement to perform the actions (in this case five calendar years). New entrants to the grid would continue to extend the reliability risk. The verbiage within the other Requirements do not mitigate this gap and depend upon R1 to be completed. To mitigate this reliability gap WECC suggest changing the Initial Performance of Periodic Requirements language to the following:

Initial Performance of Periodic Requirements Existing applicable generating unit(s) for Registered Entities shall be compliant with Requirement R1 by the effective date. Registered Entities with existing applicable unit(s) shall perform their first periodic review for those existing units under Requirement R1 by no more than 60 months after the effective date of EOP-012-2. Newly applicable generating unit(s) shall be compliant with Requirement R1 by their commercial operating date and a periodic review under Requirement R1 shall be performed no more than 60 months after their commercial operating date.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT believes this is clear. Everyone should have an ECWT on the applicable effective date of the standard per the implementation plan. If your commission date is after the effective date of the standard, you are responsible for compliance for all requirements of the standard on your commission date.

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

3. Based on industry comments that constraints are expected to be rare and the conditions that drive them will not change frequently, the SDT moved from an annual to a 5-year review. Do you agree with this change?

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

Once a constraint is declared, the SRC is concerned that a five-year review period will delay the identification and adoption of new freeze protection technologies. Since the proposed GCWC definition implies that generators are only required to implement freeze protection technologies that are “generally implemented by the electric industry in areas that experience similar winter climate conditions,” the standard does not provide an incentive for generators to install new freeze protection technologies. As a result, new technologies are unlikely to be installed during the gap between constraint reviews and may not even be installed as a result of the constraint review, as it is unclear how widely a technology must be used before it will be considered “generally implemented.” Given the typical pace of change within the electric utility industry, it may take years for a new technology to be adopted widely enough to be considered “generally implemented.” Consequently, the SRC believes that the best way to ensure that new freeze protection technologies are timely evaluated and implemented is to combine an annual constraint review process with the SRC’s proposed revision of the relevant portion of the GCWC definition to read “practices, methods, or technologies **that would reasonably be expected to result in effective facility performance while operating at the Extreme Cold Weather Temperature (ECWT).”**

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The Standard Drafting Team considered several competing objectives when developing the concept of a Generator Cold Weather Constraint, and believes the current language provides the best balance between rapid installation and reliable, cost-effective application of new technologies.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf on Constellation segements 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy agrees with this change from annual to 5-year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	
A review periodicity of five years is appropriate. Constraints may be far from rare, however, since they may for example be declared for most if not all wind turbines regarding blading anti-icing systems.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Avista agrees with EEI, & supports the change from an annual review to a 5 year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	Yes

Document Name	
Comment	
AECI supports comments submitted by ACES.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to ACES.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response, please see response to MRO NSRF.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	

AZPS agrees with this change.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF is supportive of the change to a 5-year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista agrees with these comments and the EEI comments. EEI supports the modifications made to the EOP-012 Implementation Plan.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E agrees with this change in frequency.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM and TNMP agree with new moving the annual review to a 5 year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	Yes
Document Name	
Comment	
Same comment regarding consideration as above. Annual reviews may actively capture “broadly implemented” practices, methods, or technologies more effectively. Assuming “rare” does not seem to line up with the amount of effort provided by industry to call out constraints and attempt to define criteria for the constraints.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The Standard Drafting Team considered several competing objectives when developing the concept of a Generator Cold Weather Constraint, and believes the current language provides the best balance between rapid installation and reliable, cost-effective application of new technologies.	
Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern agrees with EEI and supports the change to a 5-year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
The addition of the term “or as needed” adds to the expectation for GO to review/update the Constraint declaration and operating limitations.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the change from an annual review to a 5 year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy is supportive of the change to the 5-year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	Yes
Document Name	

Comment	
LS Power Devleopment agrees with the 5-year review to align other review requirements in this standard.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute” EEI supports the change from an annual review to a 5 year review.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Megan Melham - Decatur Energy Center LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.

Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Thank you for your support.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE continues to be concerned that there is no requirement explicitly stating the GO shall inform the planning and operational entities, such as the Balancing Authority, Transmission Operator, or Reliability Coordinator of a Generator Cold Weather Constraint.	

Since the phrase “acceptable practices” in the Generator Cold Weather Constraint definition is vague and could lead to inconsistent application, Texas RE does not agree with increasing the review of the declaration from one year to five years. Generators should be reviewing their declarations annually to ensure all available information is up to date and usable.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The Standard Drafting Team considered several competing objectives when developing the concept of a Generator Cold Weather Constraint, and believes the current language provides the best balance between rapid installation and reliable, cost-effective application of new technologies. The Standard Drafting Team suggests that entities utilize applicable data request procedures to obtain information from Generator Owners regarding GCWCs, if desired.	

See the unofficial comment form for additional information: https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07_Unofficial_Comment_Form_AB%202%20EOP-012-2_011024.docx

4. Per the FERC directive to shorten the timeframe to implement freeze protection measures on existing units, the SDT proposes an implementation plan where all requirements of EOP-012-2 go into effect on the effective date of the standard except Requirement R3 which has a 12-month implementation time frame. The chart below is included to compare the EOP-012-1 and EOP-012-2 IPs for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. After reviewing the comments on the previous posting, the team determined to not change the timeframe in the posted implementation plan for reasons explained in the Consideration of Comments. If you have any further comments, please provide them here.

Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
NO. We agree with some comments provided by AES and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	
The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	

David Rivera - New York Power Authority - 3	
Answer	No
Document Name	
Comment	

NYPA has concerns about the CAP timelines mentioned in the standard. Given the extended lead time for delivery, potential financial burden, and resource allocation issues, especially if CAP required for multiple units, NYPA recommends that the SDT consider providing more flexibility to utilities regarding CAP timelines.

Likes 0	
Dislikes 0	

Response

The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

While the timelines specified in R7, Parts 7.1.1 and 7.1.2, might be reasonable for the R1 re-calculations of ECWTs in the future, we are concerned that they may be unreasonable for the initial performance hurdle of R1/R3, particularly for entities that own a lot of applicable units. Even if an entity has the funding to implement the changes, there are a limited number of OEMs and design firms able to support the work, and they may be utilized by numerous GOs for such work. We suggest the Implementation Plan allow for existing units to be brought into initial compliance within six (6) years (10/1/2031), with percentage milestone completion targets for years 4 (30%), 5 (60%), and 6 (100%)..

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The SDT discussed changing implementation dates and chose not to do this as the majority of the industry supported the current dates. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.

C. A. Campbell - LS Power Development, LLC - 5	
Answer	No
Document Name	
Comment	
LS Power Development supports NAGF comments. Additionally, as written entities have 12 months to develop a CAP from the implementation date, this would mean that all required assessments would have to be concluded prior to the implementation date (10/1/2024) in order to take full advantage of that 12 month timeframe. CAPs dedicated to winter weatherizations require coordination around existing scheduled outages, so preceeding assessments & resulting development may require a longer timeframe. Should entities rely on historical operations and an issue occurs within that 12-month period, then the timeframe would be even more restrictive. There are no carve-outs for scenarios deviating from existing assumptions.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response, the Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
The SRC is concerned that the period allotted for implementation of freeze protection measures remains excessive due to the amount of time industry has already had to implement freeze protection measures. The SRC believes it is important for the standard to require implementation of freeze protection measures as quickly as reasonably possible and believes that a reduced timeframe for CAP implementation will help achieve this goal. However, the SRC recognizes that the standard also needs to account for the potential impacts of large generation fleets, complex freeze protection measure installation procedures, and limited outage windows in which corrective	

actions can be implemented. Therefore, the SRC recommends that language be added to R7.3 to allow entities necessary flexibility in implementing their CAPs should they encounter obstacles that prevent them from timely completing the CAP. Revised CAPS would be submitted to and approved by NERC and/or the relevant Regional Entity to ensure that a defined completion period is established. This language, paired with the shorter implementation timeframes in R7.1 that the SRC recommends below, strikes an appropriate balance between expeditious implementation of corrective actions and appropriate allowance for and oversight of the impacts of unpredictable real-world conditions.

In addition, the SRC continues to recommend that the drafting team further clarify the language regarding CAPs in Requirement R7. As proposed, R7 does not appear to include sufficient focus on CAP implementation. Additionally, the SRC reads Part 7.1.1 to require a GO to "[l]ist the action(s) which address(es) existing equipment or freeze protection measures" and to implement those within 24 calendar months, while Part 7.1.2 requires a GO to "[l]ist the action(s) which require(s) new equipment or freeze protection measures" and implement those within 48 calendar months.

However, because some corrective actions may address existing equipment and also require new measures, these categories are not necessarily mutually exclusive, and an ambiguity could therefore arise regarding the appropriate timeline that would apply in such a case. The SRC presumes that the CAP implementation timeline should depend on whether new equipment is required to be installed, and not on whether the CAP "addresses" existing equipment or measures. Regarding the timeline, new "measures" that don't require new equipment would not seem to require more than a year to complete, while new equipment should not require more than two years in the vast majority of cases. Therefore, the proposed 24- and 48-month timelines seem excessive.

The SRC suggests the following revised language for Requirement R7, Parts 7.1 and 7.3:

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1 **(new subpart**) Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, document the generator's best efforts to promptly implement all immediate and near term actions that it can undertake prior to the next upcoming winter season to winterize the generating unit(s) to operate at its calculated Extreme Cold Weather Temperature;

7.1.2 (in place of 7.1.1) Specify each corrective action that does not require the installation of new equipment but which cannot be implemented prior to the next upcoming winter season. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 12 months of the development of the Corrective Action Plan;

7.1.3. (in place of 7.1.2) Specify each corrective action that requires the installation of new equipment. Subject to inclusion of documentation supporting declaration of a Generator Cold Weather Constraint, such actions must be completed within 24 months of the development of the Corrective Action Plan;

7.1.4. (formerly R7.1.3) List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures; and

7.3 Update the Corrective Action Plan, with justification **and supporting documentation of the needed implementation time**, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1, **and report the update and associated justification and supporting documentation to NERC and/or the relevant Regional Entity for review and approval** . . .

Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The SDT has discussed and will not be decreasing the timetables for CAP implementation.	
Don Cribb - Santee Cooper - 5, Group Name Santee Cooper	
Answer	No
Document Name	
Comment	
R7. Part 7.1.1 and Part 7.1.2 have hard deadlines for Corrective Action Plans. Part 7.1 should clearly indicate that these deadlines are superseded when an extension is justified by Part 7.3.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT has made clarifying changes in R7.	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	No
Document Name	
Comment	
Arevon agrees with NAGF comments. The proposed timelines are likely sufficient for implementing repairs or new freeze protection measures on a single unit. However, CAPs are required to address other like units as well. Because that could increase the number of units that must be addressed, the timelines are not sufficient. We understand that FERC referenced TPL-007 as a model for the CAP timeline. We also understand that one plant maintenance manager agreed that this timeline was reasonable for a single unit. However, neither of those “recommendations” address multiple like units. To the extent that the standard requires the CAPs to address like units, the time to implement the CAP must address the need to budget, engineer, plan, schedule and implement corrections for more than one unit. If a	

CAP must address 10 units, a four-year time frame is not likely to be achievable. As currently structured, a GO will need to create one CAP that addresses the timeline and then create a “revised” CAP that is more realistic.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
We do not agree with the proposed EOP-012-2 Implementation Plan timeframe for this requirement which requires GOs to have the capability to operate at the ECWT or a CAP written by the effective date of the requirement. This shortened timeframe will increase competition for vendor resources. This is a deviation from the FERC direction to NERC. FERC directed NERC to address concerns relating to the extensive period before generators must implement freeze protection measures or develop corrective action plans. This is not equivalent with the GOs having the capability to operate at the ECWT or a CAP written by the effective date of the requirement. The major and necessary decrease in reliability risk is achieved through the mere implementation of freeze protection measures, which will eliminate the simultaneity of the generator cold weather events. Appropriate planning should ensure adequate reserve is available to replace the generating units subject to a cold weather event.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT met the intent of the FERC directive to have freeze protection measures, but did it through shorter implementation plans rather than using a staggered implementation.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	
For units with a low capacity factor (peaking generation) it is difficult to identify and implement design improvements that will increase cold weather reliability	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The standard requires the GO to review its ECWT for the resource and implement or develop a CAP for freeze protection measures on cold weather critical components to meet the ECWT.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The proposed timeline are likely sufficient for implementing repairs or new freeze protection measures on a single unit. However, CAPs are required to address other like units as well. Because that could increase the number of units that must be addressed, the timelines are not sufficient. We understand that FERC referenced TPL-007 as a model for the CAP timeline. We also understand that one plant	

maintenance manager agreed that this timeline was reasonable for a single unit. However, neither of those “recommendations” address multiple like units. To the extent that the standard requires the CAPs to address like units, the time to implement the CAP must address the need to budget, engineer, plan, schedule and implement corrections for more than one unit. If a CAP must address 10 units, a four-year time frame is not likely to be achievable. As currently structured, a GO will need to create one CAP that addresses the timeline and then create a “revised” CAP that is more realistic.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
We agree with some comments provided by AES and Talen but are not going to restate each item specifically.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Megan Melham - Decatur Energy Center LLC - 5	
Answer	No
Document Name	

Comment	
The proposed timeline are likely sufficient for implementing repairs or new freeze protection measures on a single unit. However, CAPs are required to address other like units as well. Because that could increase the number of units that must be addressed, the timelines are not sufficient. We understand that FERC referenced TPL-007 as a model for the CAP timeline. We also understand that one plant maintenance manager agreed that this timeline was reasonable for a single unit. However, neither of those “recommendations” address multiple like units. To the extent that the standard requires the CAPs to address like units, the time to implement the CAP must address the need to budget, engineer, plan, schedule and implement corrections for more than one unit. If a CAP must address 10 units, a four-year time frame is not likely to be achievable. As currently structured, a GO will need to create one CAP that addresses the timeline and then create a “revised” CAP that is more realistic.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AES Clean Energy supports NAGF’s comments. Depending on the findings from R6.2, the CAP could involve multiple units. For an IPP that operates across multiple regions, the time needed to develop O&M budget, issue RFPs for addressing the action items listed in the CAP and completing the work can be longer than the 48 months under R7.1.2. This does not even include supply chain issues if there are only limited OEMs able to provide the equipment as well as capable contractors to perform installation of the equipment. CAP completion should be contingent upon technical feasibility of the equipment and available replacement.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree with the new dates and recommends remaining with EOP-012-1 original dates.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was directed to change the implementation plan dates of EOP-012-1 in the 2/16/2023 FERC order.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	
We suggest that Requirement R3 should have a 24-month implementation time frame. For generating units in commercial operation, a 12-month implementation time frame is not enough.	
Likes 0	
Dislikes 0	

Response	
Thank you for your comment. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to NAGF.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
The proposed deadlines may be impractical for companies with numerous units to address, particularly if EOP-012 creates a continent-wide surge in winterization activity that reduces the availability of qualified contractors and materials. Deadlines from the date of the GCWRE are also needed for generation units that were compliant on 10/1/2024 but froze-up at a later date.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute” EEI supports the proposed timeline.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy is supportive of timeframes as posted.	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the proposed timeline.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	Yes
Document Name	
Comment	
See our comments in Q2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to Q2.	
Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	

Answer	Yes
Document Name	
Comment	
Southern agrees with EEI and supports the proposed implementation timeframe of EOP-012-2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM and TNMP agree with new implementation dates in the implementation plan.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	

Comment	
PG&E does not have any further comments on the implementation time frame.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista, EEI supports the proposed timeline.	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF is supportive of timeframes as posted.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	Yes
Document Name	
Comment	
AZPS agrees with this timeframe.	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Richard Vendetti - NextEra Energy - 5	
Answer	Yes
Document Name	
Comment	
There are still concerns from a budgetary, labor and/or parts constraints to obtain the objective.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support. The Requirements (specifically R7) allow CAP timetables to be updated if the original planned timetable cannot be met.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes
Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	Yes
Document Name	
Comment	
AECI supports comments submitted by ACES.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	

Comment	
FirstEnergy supports the proposed timeline.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Effective Date 10/1/2024 10/1/2024 **Have Capability to Operate at ECWT or CAP Developed** 4/1/2028 10/1/2025 **CAP Completed** no end date specified 10/1/2027 (R7.1.1) or 10/1/2029 (R7.1.2)	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments.	

Kimberly Turco on behalf on Constellation segements 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Colin Chilcoat - Invenergy LLC - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	
Same comments regarding consideration. Existing units applicability is covered. New units applicability dates are not captured effectively and changes to the Implementation Plan should be considered to mitigate this reliability gap. The phrase “as determined in Requirement R1” is used extensively but the Initial Performance for newly applicable generating unit(s) is not addressed in the Implementation Plan thus giving new units “five calendar years” to develop an ECWT.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT believes this is clear. Everyone should have an ECWT on the applicable effective date of the standard per the implementation plan. If your commission date is after the effective date of the standard, you are responsible for compliance for all requirements of the standard on your commission date.	

5. The SDT proposes that the modifications in EOP-012-2 meet the key recommendations in The Report as well as the directives in the FERC order in a cost-effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost-effective approaches, please provide your recommendation and, if appropriate, technical, or procedural justification.
Donald Lock - Talen Generation, LLC - 5

Answer	No
Document Name	
Comment	
Ref. our, "Do it right the first time," comment for Question 1 above, the EOP-012-2 new unit of the 0.2 percentile dry bulb temperature (for a look-back to 1/1/2000) plus a 20 mph wind criterion has no scientific basis, and for our own units would not protect against a repetition of the Polar Vortex of 2014 or Winter Storm Uri. New units should be winterized to the ASHRAE 50-year recurrence dry bulb temperature plus a 20 mph wind. This should be a once-and-done exercise, not something requiring periodic adjustment and potentially having to tear-out everything originally done for EOP-012 and start over.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The ECWT definition is previously approved industry and FERC language from phase 1, thus the team will not be modifying the definition at this time.	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	No
Document Name	
Comment	

AECI supports comments submitted by ACES.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to ACES.	
Richard Vendetti - NextEra Energy - 5	
Answer	No
Document Name	
Comment	
EOP-012-2 as it stands, requires implementation of “freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature”. It will be extremely difficult for wind turbine generators to comply with this standard and always guarantee reliable operation if considering temperature only as the criteria. This is due to the formation of ice on blades. This phenomenon does not depend solely on ambient temperature but other factors such as water content in the air, altitude & sky conditions among others. It is known from operational experience that if certain ambient conditions are present, the wind turbine generators will accrete substantial amount of ice on blades even if ambient temperature is within the design limit of the wind turbine generator. The formation of ice on blades can be so extreme that it would lead to the inevitable shutdown of the wind turbine generator. We would like to encourage the Standard Drafting Team to include required limits for all the variables which play a role on the fundamental blade icing physics. That would help Generator Owners to consider as freeze protection measures technologies which could help prevent ice accretion	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. The SDT believes the standard is written to be technology neutral when it comes to generation types. As written, the generator must determine and document it can operate reliably at the ECWT. For example, if the turbine OEM provided a minimum operating temperature of -4 degrees Fahrenheit and the ECWT is -1 degrees Fahrenheit, the Generator Owner has met requirement R3 (assuming the Generator Owner maintains this capability). As part of Requirement R1, specifically to address part 1.2.1.1, the Generator Owner who understands that precipitation may impact the output of the generator will identify that its Capability and Availability may be reduced during cold weather events that include precipitation. This information will then be included in the cold weather plan for the generator to meet R4, specifically part 4.2. The information should also be provided to the BA, RC, and TOP when requested under their data specifications as required in TOP-003 and IRO-010.

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO

Answer	No
Document Name	

Comment

Our generating units are operating below 32 degrees Fahrenheit (zero degrees Celsius) for more than half of the time in a year. Cold weather operation in winter is our normal operation. It significantly increases compliance cost if documentation is required for cold weather preparedness plans because they are embedded in the well developed and practiced maintenance and operation procedures. Even though the proposed M4 includes the existing operating procedures, it is still an undue administrative burden to extract the cold weather-related part from the existing procedures. There is a risk of reducing reliability if the routines are broken when trying to reorganize the maintenance and operation procedures. Specific cold weather-related training increases cost for the normal operating duties in our region. This is not a proper way to increase reliability.

Likes 0	
Dislikes 0	

Response

Thank you for your comment. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be

able to meet or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree. As annotated in previous comments, Reclamation facilities have been operating in "extreme cold weather" since inception, and this standard burdens the facilities with excessive requirements and unnecessary administrative actions.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard's requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	

NRG believes that this version is an improvement over previous versions of this draft standard. However, implementing EOP-011 has proven to be a large undertaking with equally large associated costs. The transition to EOP-012 with the costs of additional equipment and administrative overhead to meet the requirements does not appear to be cost-effective for generators.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
NRG believes that this version is an improvement over previous versions of this draft standard. However, implementing EOP-011 has proven to be a large undertaking with equally large associated costs. The transition to EOP-012 with the costs of additional equipment and administrative overhead to meet the requirements does not appear to be cost-effective for generators.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	

Refer to AES Clean Energy’s comments to Question 4.

Likes 0	
Dislikes 0	

Response

Thank you for your comment, please see response to Question 4.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC has signed on to ACES comments:

We do not believe that either following changes are a cost-effective solution:

- The inclusion of “impacts of freezing precipitation on equipment” in the definition of “Generator Cold Weather Reliability Event”
    - By including the impacts of freezing precipitation on equipment, the proposed revision could potentially cause the industry to adopt an iterative approach to compliance. Furthermore, modifying the definition in such a manner could cause the GO to be at risk of non-compliance with Requirement R6 even when fully compliant with R2 or R3 as applicable.
        - As written, Requirements R2 and R3 require the GO to implement freeze protection measures based on the Extreme Cold Weather Temperature; however, the GO is not required to address the impacts of freezing precipitation on equipment under either Requirement.
- The modification to Requirement R4 Part 4.4 changing “may include” to “includes”
    - This seemingly minor change has enormous compliance consequences for the GO.
        - By requiring the GO to document freeze protection measures used to reduce the cooling effects of wind and the effects of freezing precipitation, the proposed change will force the GO to evaluate and possibly implement such measures. This is further exacerbated by the fact that Requirements R2 and R3 only require the GO to implement freeze protection measures based on temperature alone.

- We believe such an evaluation and subsequent implementation is cost prohibitive and an undue compliance burden for the GO.
- We recommend reverting to the previous language for Requirement R4 Part 4.4.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The standard does account for the impacts of freezing precipitation and cooling effects of wind to meet the objectives of Key Recommendations. Additionally, the SDT has determined that GOs have the responsibility to determine which freeze protection measures are needed to account for the impacts of freezing precipitation and cooling effects of wind. The standard does not set a specific bar for existing generating units and as such, GOs should use their past experience and good utility practice to determine what freeze protection measures are required to operate to their extreme cold weather temperature reliably. The SAR requires the standard to have requirements that consider the cooling effects of wind and effects of freezing precipitation. Requirement 4.4 requires the GO to document the freeze protection measures that were implemented and these may include specific freeze protection measures that address wind and precipitation.

Megan Melham - Decatur Energy Center LLC - 5

Answer	No
Document Name	

Comment

Please see the response to question 4 for the concerns to address improvements for a cost-effective approach.

Likes 0	
Dislikes 0	

Response	
Thank you for your comment, please see response to question 4.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	No
Document Name	
Comment	
The SDT has not provided a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply says there is a reliability gap, or a risk, but does not provide estimated, tangible, reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	No
Document Name	
Comment	
Invenergy believes the SDT improved upon the previous draft, but, absent a comprehensive cost-benefit analysis, is not in a position to comment on the cost-effectiveness of the modifications in EOP-012-2	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
Please see the NAGF response to question 4 for the concerns to address improving the cost -effective approach.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to question 4.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	

The requirement to implement additional freeze protection measures at a site with a low capacity factor is not likely to be “cost effective”. The capital investments necessary to improve reliability of generating units that were not designed to operate at a lower temperature will drive up the cost of electricity for everyone.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
There is no reliability gap for the Canadian Entities, as these entities are successfully operating in a Cold Climate through the associated extremes, with the aid of their current operating instructions, procedures, training, and specific station design. There should be an **exception in the applicable Facilities, to exclude the Canadian BES generating units**, as a cost-effective approach, without the undue compliance burden, towards the reliable operation of these facilities.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The drafting team believes that it is important for all generators to remain vigilant to the potential reliability effects of extreme cold weather, particularly as the grid transforms to one that is more susceptible to the risks of such weather. The drafting team expects that those generators that have consistently demonstrated satisfactory performance during cold weather will be able to meet or exceed the standard’s requirements with little additional burden. The drafting team has made clarifications that existing materials may be used to demonstrate compliance. The drafting team does not believe that excluding Canadian entities or other entities	

that have consistently demonstrated satisfactory performance during cold weather from future compliance with cold weather standards, solely on the basis of historical performance, is consistent with the recommendations of the cold weather report or the SAR.	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	No
Document Name	
Comment	
Please see response to question 4 for the concerns to address improving the cost -effective approach.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to question 4.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	No
Document Name	
Comment	
Invenergy believes the SDT improved upon the previous draft, but, absent a comprehensive cost-benefit analysis, is not in a position to comment on the cost-effectiveness of the modifications in EOP-012-2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer No

Document Name

Comment

Part 7.1 should clearly indicate that deadlines are superseded when an extension is justified by Part 7.3. There are instances where implementing corrective action plans at a date later than prescribed by 7.1.1 and 7.1.2 would not impose additional reliability risks and could provide substantial cost savings for regulated entities.

Likes 0

Dislikes 0

Response

Thank you for your comment. The SDT has made a clarifying change to the standard to address this concern.

Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer No

Document Name

Comment

We do not believe that either following changes are a cost-effective solution:

- The inclusion of “impacts of freezing precipitation on equipment” in the definition of “Generator Cold Weather Reliability Event”
  - By including the impacts of freezing precipitation on equipment, the proposed revision could potentially cause the industry to adopt an iterative approach to compliance. Furthermore, modifying the definition in such a manner could cause the GO to be at risk of non-compliance with Requirement R6 even when fully compliant with R2 or R3 as applicable.
    - As written, Requirements R2 and R3 require the GO to implement freeze protection measures based on the Extreme Cold Weather Temperature; however, the GO is not required to address the impacts of freezing precipitation on equipment under either Requirement.

- The modification to Requirement R4 Part 4.4 changing “may include” to “includes”
  - This seemingly minor change has enormous compliance consequences for the GO.
    - By requiring the GO to document freeze protection measures used to reduce the cooling effects of wind and the effects of freezing precipitation, the proposed change will force the GO to evaluate and possibly implement such measures. This is further exacerbated by the fact that Requirements R2 and R3 only require the GO to implement freeze protection measures based on temperature alone.
      - We believe such an evaluation and subsequent implementation is cost prohibitive and an undue compliance burden for the GO.
    - We recommend reverting to the previous language for Requirement R4 Part 4.4.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The standard does account for the impacts of freezing precipitation and cooling effects of wind to meet the objectives of Key Recommendations. Additionally, the SDT has determined that GOs have the responsibility to determine which freeze protection measures are needed to account for the impacts of freezing precipitation and cooling effects of wind. The standard does not set a specific bar for existing generating units and as such, GOs should use their past experience and good utility practice to determine what freeze protection measures are required to operate to their extreme cold weather temperature reliably.

C. A. Campbell - LS Power Development, LLC - 5

Answer	No
Document Name	

Comment

LS Power Development supports NAGF comments & position for this question. There are unaddressed concerns relating to cost-effectiveness.

Likes 0	
Dislikes 0	

Response	
Thank you for your comment, please see response to NAGF.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
The requirements may not directly align with other regulatory requirements including NRC, which may increase costs due to redundancy while accomplishing similar goals.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf on Constellation segements 5 and 6	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy agrees with the proposed approach toward EOP-012-2.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
Avista agrees with the EEI comments. EEI agrees that EOP-012-2 meets the key recommendations in the Report	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	Yes

Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	Yes
Document Name	
Comment	
MRO NSRF has no comments regarding the cost effectiveness of the proposed modifications.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	

Avista agrees with the EEI comments. EEI agrees that EOP-012-2 meets the key recommendations in the Report.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E agrees with the modifications.	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM and TNMP agree that cold weather implementations can be enacted in a cost-effective manner.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Southern agrees with EEI and believes the requirements in EOP-012-2 are reasonable and provide for the most cost-effective manner to achieve the desired results.	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI agrees that EOP-012-2 meets the key recommendations in the Report.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Selene Willis - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute” EEI agrees that EOP-012-2 meets the key recommendations in the Report.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Rebecca Zahler - Public Utility District No. 1 of Chelan County - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Thank you for your support.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tracy MacNicoll - Utility Services, Inc. - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	
Document Name	
Comment	

AZPS will not comment on cost effectiveness of this directive.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	
WECC will leave commenting on cost effectiveness to the registered entities that must comply with the proposed standard.	
Likes 0	

Dislikes 0	
Response	
Thank you for your response.	
Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler	
Answer	
Document Name	
Comment	
Ameren will not comment on the cost effectiveness of the project.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	
Document Name	
Comment	
NV Energy has no comments regarding the cost effectiveness of the proposed modifications.	
Likes 0	
Dislikes 0	
Response	
Thank you for your response.	

Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	
Document Name	
Comment	
NO. The SDT has not provided a cost estimate nor tangible reliability indices improvements said modifications are projected to provide. No standard should be allowed if a cost/benefit analysis is not provided by the SDT. SDT frequently asks this question but never provides a cost/benefit justification. SDTs and others, usually simply says there is a reliability gap, or a risk, but does not provide estimated tangible reliability indices improvement numbers or a cost estimate to fill the alleged gap or risk. This proposal appears to be another costly administrative process with no continent wide tangible reliability benefit.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT was seeking information from entities from their unique perspective on the cost effectiveness of the standards.	

6. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	
Document Name	
Comment	
In FERC and NERC's joint 2017 Cold Weather report they suggested a three prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA's, RTO's, and TO's which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas. It is also concerning that some people have been pressing Industry to accept this version, or else NERC will force it, or something else. There is no evidence that these modification will improve reliability and they certainly are not cost effective. It appears standards are being changed, or created, just to create the appearance that something is being done. We need tangible evidence that standards being made or changed will improve reliability, the degree of reliability improvement, and the cost/benefit to make said changes.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT cannot address market related issues or interconnection requirements.	
Romel Aquino - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	

See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	
Document Name	
Comment	

It may be beneficial to provide a way to exclude some operating limitations under R1, Part 1.2.1 for units that are not going to be applicable. For example, fuel supply and inventory concerns for hydro, wind, or solar generation.

EOP-012-1 Requirements R3, R5, R6 and R7 are currently scheduled to become effective 10/1/2024. The proposed Implementation Plan for EOP-012-2 has it becoming effective "on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority". This leaves the industry with a good bit of uncertainty in how to prepare for the mandatory and enforceable version of EOP-012 that will be effective in less than 10 months from now. Since EOP-012-1 Requirements R3, R5, R6 and R7 are the current nearest "known", we request the drafting team consider adding some additional language in the EOP-012-2 Implementation Plan to address a scenario where the applicable governmental authority's order approving the EOP-012-2 standard occurs at any time prior to October 1, 2024. Under this scenario, we suggest that EOP-012-1 Requirements R3, R5, R6 and R7 not be enforced. Possible language to consider:

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective. ***Should the applicable governmental authority's order approving EOP-012-2 be issued prior to October 1, 2024, EOP-012-1 will not have an effective period.*** In other words, if the effective date of EOP-012-2 should slide to January 1, 2025 (approval order issued between 7/1/24 and 9/30/24), don't create a three month enforcement window for EOP-012-1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT expects that EOP-012-2 will supersede EOP-012-1 before it becomes effective.	
C. A. Campbell - LS Power Development, LLC - 5	
Answer	
Document Name	
Comment	
The Standard Drafting Team has done an exceptional job with trying to meet the demands of so many positions revolving around industry participant contraints and needs. We are sensitive to the challenge of meeting FERC directives in this project and appreciate the efforts and intent to improve reliablity during the winter season. LS Power Development agrees with the NAGF comments and requests consideration of further revisions.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments, please see response to NAGF.	
Jodirah Green - ACES Power Marketing - 1,3,4,5 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	

Document Name	
Comment	
Thank you for the opportunity to comment.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC)	
Answer	
Document Name	
Comment	

The SRC provides the following additional comments:

Revise the applicability of the standard to better match FERC's directives - The SRC agrees with the proposed revisions to the Applicability section of the Standard but remains concerned with the existing generating unit exemptions contained in Requirements R2, R3, and R6 and related footnotes, as these exemptions appear to allow unit(s) needed for reliable operation to be exempt from meeting the Requirements to implement freeze protection measures and develop a CAP as needed. In order to meet the directive in paragraph 58 of FERC's February 16, 2023 Order that the standard should "capture[] all [BES] generation resources needed for reliable operation and exclude[] only those generation resources not relied upon during freezing conditions," the SRC recommends the following revisions:

-- Replace "self-commits or that is required to operate" with "that may be committed to operate" in Requirements R2, R3, and R6.

-- Remove or revise footnotes 1, 2, and 4.

--- If the footnotes are revised instead of removed, the SRC proposes the following language: *Generating unit(s) that were intentionally designed for limited operation in the summer season, but may operate on a "best efforts" basis during the winter season when needed in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.*

Add timing specificity for required inspections & maintenance - The SRC recommends that Requirement R4, Part 4.5 be revised to require inspections and maintenance of all units on "at least an annual basis, and always within three months of the upcoming winter season." This request is due to past and current findings in which the GO/GOP did not initiate inspection and maintenance early enough or prior to winter and was consequently not timely prepared for cold weather operations.

Revise R1.1.1 - The SRC notes that R1.1.1 requires development of a CAP within 6 months of the recalculation of the ECWT if new corrective actions are needed to provide the required operational capability under Requirement R3, but does not contain a corresponding requirement for the operational capability required under Requirement R2. The SRC believe that it is important for R1.1.1 to address the impact of a recalculated ECWT on both Requirement R2 and Requirement R3; the SRC therefore recommends that R1.1.1 be revised to require creation of a CAP if new corrective actions are needed to provide the required operational capability under both R2 and R3.

Combine Requirements R2 and R3 - The SRC also disagrees that the enhanced cold weather requirements that are contained within Requirement R2 should be limited to units that enter commercial operation on or after October 1, 2027. Requirements R2 and R3 should be combined into a single Requirement that applies the enhanced cold weather requirements currently contained within Requirement R2 to all units and only allows CAPs for units that achieved commercial operations before October 1, 2027. The GCWC declaration process and the Corrective Action Plan process within EOP-012 provide sufficient accommodation for existing units. Adopting the SRC's proposal would require more thorough weatherization of generation units, resulting in a more reliable and performant BES during extreme cold weather conditions.

Ensure sufficient data provision to BAs - Phase II of the Cold Weather Recommendations in FERC's report on Winter Storm Uri indicated in its discussion of TOP-003-5 in Key Recommendation 1g that the Reliability Standards should be revised to provide greater specificity about the relative roles of the Generator Owners, Generator Operators, and Balancing Authorities in determining the generating unit capacity that can be relied upon during "local forecasted cold weather." It is currently unclear to the SRC whether the five-year review period for GCWCs under EOP-012-2 Requirement R8 places GCWC information outside the operations planning time horizon in TOP-003-5 Requirement R2 and therefore out of scope for a valid TOP-003-5 data specification. The SRC requests that the drafting team provide clarification on this topic.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT appreciates SRCs comments and has reviewed the suggested revisions. The inclusion of "self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit" and the footnote language was found to be acceptable by the majority of industry and addresses the reliability concerns raised. The SDT modified R1.1.1. adding R2. The SDT discussed and concluded that the information required by the BA for the operations planning time horizon is available pursuant to TOP-003 and IRO-010. Specific informational needs required by any BA are already required to be provided when requested under TOP-003 and IRO-010.

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5

Answer	
Document Name	

Comment

NV Energy appreciates the hard work that the SDT has put into this drafting process. Their response to industry comments is a testament to the success of the Standard Drafting Process and NV Energy supports the approval of this draft based solely on the merits of the proposed language.

However, NV Energy is concerned about the addition of R1.2.1.3. We feel that this addition increases documentation burden but does not add any reliability value. Additionally, this issue would be handled by the CAP process if there are startup issues that are classified as Generator Cold Weather Reliability Events.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. GOs that may experience issues starting up in cold weather will document those issues in order to ensure that potential start-up concerns can be readily communicated to the BA/TOP/RC.	
Adrian Andreoiu - BC Hydro and Power Authority - 1, Group Name BC Hydro	
Answer	
Document Name	
Comment	
1. BC Hydro noted that Requirement R1 Part 1.1.1. includes only Requirement R3 in relation to CAP development 6-month timeline. Without referencing R2 as well, generating units with a commercial operation date on or after October 1, 2027 would not be covered by this 6-month CAP development provision. Previous drafts included both R2 and R3 in this Part 1.1.1, and per the November 16, 2023 webinar this appeared to be an oversight that was to be corrected. 2. BC Hydro thanks the drafting team for their response to our suggestion on the R6 timeline in the previous draft. While we understand that there is no expectation to complete the CAP by July 1, as “freezing precipitation” may result in EOP-012 events well into the Spring calendar months (March, April, or even May in extreme conditions) in British Columbia, which – given the July 1 deadline – will add considerable burden in timely completion of the CAP development in the context of Requirement R6. BC Hydro recommends that the wording of the Requirement R6 be changed to allow up to 150 calendar days in cases where the July 1 deadline may result in considerably shorter than 150-day timeframe to develop a CAP for events later in the year.	
Likes 0	

Dislikes 0	

Response

Thank you for your comments. The SDT modified R1.1.1. adding R2. The SDT reviewed R6 again and found it acceptable by the majority of industry.

Don Cribb - Santee Cooper - 5, Group Name Santee Cooper

Answer	
Document Name	

Comment

Santee Cooper agrees with the NAGF comments, but has additional comments below:

In the Standard:

R7. Part 7.1.1 and Part 7.1.2 have hard deadlines for Corrective Action Plans. Part 7.1 should clearly indicate that these deadlines are superseded when an extension is justified by Part 7.3.

R7. Part 7.1.4 is still listed and discussed in the Rationale in several places even though it has been removed from the Standard.

In the Tech Rationale:

R4. General Considerations states… “and the GO is required to annually train personnel on its (the plan’s) requirements.” Any requirement for content of training should be explicitly stated in the Standard.

R5. Technical Rationale is more prescriptive regarding the personnel required to be trained. Requirement R5 requires training for personnel responsible for implementation of the plan which does not necessarily include all individuals who conduct inspections, perform maintenance, and operations, but can be limited to supervision for the overall implementation of the Plan.

R5 in the Technical Rationale also specifies training contents not listed in the requirement. Any intended training contents should be explicitly stated in Requirement R5.

R7. The explanation states that the Corrective Action Plan requirements were modeled after TPL-007. TPL-007 allows for 2 years for non-hardware mitigations. This would be equivalent to a setpoint change or a procedural change and is very appropriate. Hardware related mitigations in TPL-007 are granted 4 years for completion. If TPL-007 Corrective Action Plans were adopted by EOP-012, corrective actions requiring existing hardware replacements would be granted 48 months for completion.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT reviewed the documents to ensure there is no reference to 7.1.4. The SDT modified 7.3 to include updates to the CAP “action(s) and timetable(s)”. The SDT was not of the opinion that the standard should be prescriptive and chose to use the TR to discuss the intent of the SDT for training and has modified the TR language to provide the clarity of the intent. Although modeled after TPL-007, the timelines established for EOP-012 are appropriate based on the Joint Inquiry report and SDT discussions.

Sean Bodkin - Dominion - Dominion Resources, Inc. - 6

Answer	
Document Name	

Comment

While the drafting team has made its intent clear in the Technical Rationale document regarding extreme cold weather startups, Dominion Energy remains concerned that the current language of the standard fails to include realistic start-up assumptions for older generators or generators with certain fuel types prejudicially by imposing what may be unreasonable start-up time frames during extreme cold weather, based on the facts and circumstances at that time. Many generators are designed to operate in extreme cold weather but not to startup on short notice during the same conditions. A generator may have a typical startup time for expected conditions but have an extended startup time the extreme cold weather temperature was not designed to start up at. There is no way to test a generator(s) startup period in an extreme weather condition until the situation occurs. The standard should account for this and specify that generators should only be required to communicate these abnormal startup issues and changes to expected startup periods rather than be required to perform a CAP to retrofit a facility to be able to startup at its extreme cold weather temperature.

Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. GOs that may experience issues starting up in cold weather will document those issues in order to ensure that potential start-up concerns can be readily communicated to the BA/TOP/RC.	
Colin Chilcoat - Invenergy LLC - 6	
Answer	
Document Name	
Comment	
Revise M8 to reflect the revised constraint declaration review cadence of at least every five calendar years. Please validate our understanding that Generator Cold Weather Reliability Events for which the apparent cause is due to freezing of equipment subject to a Generator Cold Weather Constraint do not require Corrective Action Plans. For example, if a Generator Owner has declared a Generator Cold Weather Constraint for its wind turbine blades, would the Generator Owner need to develop a Corrective Action Plan for each Generator Cold Weather Reliability Event caused by blade icing?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT modified M8 to reflect the appropriate review cadence. The TR provides additional information related to the SDT intent related to Generator Cold Weather Constraints and CAPs.	
Srinivas Kappagantula - Arevon Energy - 5	
Answer	
Document Name	

Comment	
Arevon agrees with the NAGF comments. 1. The SDT has improved the proposed standard significantly. There are still areas that can be improved upon, and the NAGF hopes to see these improvements in the near future. Assuming this iteration is approved by the ballot body, the NAGF would like to see the SDT continue to address areas of concern, specifically improving the language around the training requirements, further refining the ECWT calculation to ensure it is sustainable over time, improve areas like 1.2 to better address the differences in generator types (there is no reason for a wind or solar facility to include language in their cold weather plan about fuel supply concerns or fuel switching capabilities, but as written, auditors are suggesting PNCs if the plan does not address these two items). These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time. 2. New sub-requirement: R1.2.1.3 Start-up issues: The NAGF requests the drafting team and NERC to consider including the same requirement in IRO-010 or TOP-003. Currently, TOP-003-5 that became effective on 4/1/2023 has no sub-requirement for BA and TOP to require similar data from GO/GOP. Therefore, addition of this sub-requirement in EOP-012-2 will lead to administrative work that may have no effect on reliability if it’s not being requested or utilized. Although it is specified in the new TOP-002-5 R8 where it applies to the BA only, there is no corresponding requirement for the BA in TOP-003. It is only assumed that BA will need the data and list it in their data specification. 3. Technical Rational Document enhancements: a. The NAGF recommends that the drafting team include examples in Technical Rational regarding “Start-up issues” and differentiate between synchronous generators and IBRs. b. Generator Cold Weather Critical Component – the NAGF notes that with the exclusion language added for any component and/or system located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32F, it is unclear whether this applies to containers for inverters and battery energy storage systems which are normally temperature controlled via a HVAC system. We recommend the drafting team provide further details on what is considered “permanent building”.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comments. The SDT will pass on the NAGF's recommendations for future improvements to the standard. The SDT discussed possible modifications to TOP-003 and IRO-010, but it is outside the scope of this SDT's SAR. The SDT made modifications to the TR for additional clarity around permanent buildings and heat sources.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	
Document Name	
Comment	
OPG supports the Hydro Quebec comment: "While we appreciate the great efforts the SDT has made to improve the proposed standard, there are still areas that can be improved on, specifically in regard to the applicability section to better address the differences in generator types and the training requirements. These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time."	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT will pass on the OPG's recommendations for future improvements to the standard.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	
Document Name	
Comment	

See NAGF comments. We would like to see additional changes to EOP-012 to address language that could cause inconsistency in approach.

Likes 0	
Dislikes 0	

Response

Thank you for your comments, please see the response to NAGF.

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	
Document Name	

Comment

The NAGF provides the following additional comments for consideration:

1. The SDT has improved the proposed standard significantly. There are still areas that can be improved upon, and the NAGF hopes to see these improvements in the near future. Assuming this iteration is approved by the ballot body, the NAGF would like to see the SDT continue to address areas of concern, specifically improving the language around the training requirements, further refining the ECWT calculation to ensure it is sustainable over time, improve areas like 1.2 to better address the differences in generator types (there is no reason for a wind or solar facility to include language in their cold weather plan about fuel supply concerns or fuel switching capabilities, but as written, auditors are suggesting PNCs if the plan does not address these two items). These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.

2. New sub-requirement: R1.2.1.3 Start-up issues:

The NAGF requests the drafting team and NERC to consider including the same requirement in IRO-010 or TOP-003. Currently, TOP-003-5 that became effective on 4/1/2023 has no sub-requirement for BA and TOP to require similar data from GO/GOP. Therefore, addition of this sub-requirement in EOP-012-2 will lead to administrative work that may have no effect on reliability if it’s not being requested or utilized. Although it is specified in the new TOP-002-5 R8 where it applies to the BA only, there is no corresponding requirement for the BA in TOP-003. It is only assumed that BA will need the data and list it in their data specification.

3. Technical Rational Document enhancements:

a. The NAGF recommends that the drafting team include examples in Technical Rational regarding “Start-up issues” and differentiate between synchronous generators and IBRs.

b. Generator Cold Weather Critical Component – the NAGF notes that with the exclusion language added for any component and/or system located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32F, it is unclear whether this applies to containers for inverters and battery energy storage systems which are normally temperature controlled via a HVAC system. We recommend the drafting team provide further details on what is considered “permanent building”.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT discussed possible modifications, but it was not the appropriate time to pursue them. The SDT would encourage the commenter to submit a SAR if they believe it would enhance reliability to have that specific item addressed. The SDT discussed possible modifications to TOP-003 and IRO-010, but it is outside the scope of this phase of the SDT’s work. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. The SDT made modifications to the TR for additional clarity around permanent buildings and heat sources.

Mark Fowler - Mark Fowler On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Mark Fowler

Answer	
Document Name	

Comment

Ameren believes the 20mph wind requirement is not practical.

Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Rhonda Jones - Invenergy LLC - 5,6	
Answer	
Document Name	
Comment	
• Revise M8 to reflect the revised constraint declaration review cadence of at least every five calendar years. • Please validate our understanding that Generator Cold Weather Reliability Events for which the apparent cause is due to freezing of equipment subject to a Generator Cold Weather Constraint do not require Corrective Action Plans. For example, if a Generator Owner has declared a Generator Cold Weather Constraint for its wind turbine blades, would the Generator Owner need to develop a Corrective Action Plan for each Generator Cold Weather Reliability Event caused by blade icing?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT modified M8 to reflect the appropriate review cadence. The TR provides additional information related to the SDT intent related to Generator Cold Weather Constraints and CAPs.	
Lauren Giordano - Lauren Giordano On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - Lauren Giordano	
Answer	
Document Name	
Comment	

In FERC and NERC's joint 2017 Cold Weather report they suggested a three prong approach to address cold weather reliability issues: guidance, standard modifications, and market rules modifications. To date only guidance and standard modifications have been implemented. We suggest BA's, RTO's, and TO's which have experienced the recent cold weather events modify their market rules and interconnection requirements, which they can do without NERC, if they want to improve reliability in their areas.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT cannot address market related issues or interconnection requirements.	
Colby Galloway - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	
Document Name	
Comment	
Southern wishes to thank the SDT for their efforts to provide a reasonable and cost-effective standard for the industry that is broad enough to encompass a variety of climatic conditions and generator types.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	

The examples of possible Generator Cold Weather Constraints within the Technical Rationale do not support the proposed language changes for the definition of Generator Cold Weather Constraint. The examples, if provided at all in a Technical Rationale versus an Implementation Guidance document, should be updated to clearly reflect the proposed language.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT modified the Generator Cold Weather Constraint section in the Technical Rationale.	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC	
Answer	
Document Name	
Comment	
NPCC RSC supports this draft and thank you for all your hard work.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	
Document Name	
Comment	

None	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins	
Answer	
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	
Document Name	
Comment	
While we appreciate the great efforts the SDT has made to improve the proposed standard, there are still areas that can be improved on, specifically in regard to the applicability section to better address the differences in generator types and the training requirements. These	

modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT will pass on the Hydro-Quebec's recommendations for future improvements to the standard.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	
Document Name	
Comment	
While we appreciate the great efforts the SDT has made to improve the proposed standard, there are still areas that can be improved on, specifically in regard to the applicability section to better address the differences in generator types and the training requirements. These modifications should be made without the time constraints under which EOP-012-1 and EOP-012-2 were developed to allow industry to develop a standard that can withstand the test of time.	
Likes 1	Ontario Power Generation Inc., 5, Chitescu Constantin
Dislikes 0	
Response	
Thank you for your comments. The SDT will pass on the Hydro-Quebec's recommendations for future improvements to the standard.	
Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	
Document Name	
Comment	

Minnesota Power turbines are designed with the cold weather package, which allows for operation down to -22 degrees Fahrenheit, though Extreme Cold Weather Temperatures in our region are less than that. We are not aware of any manufacturers that are offering options to allow for operation below this temperature, nor any new turbines being built with the capability to operate below this level. Deviating from manufacturer recommendations would void warranties, creating a significant financial and reliability risk for the turbines. It is our understanding that a Cold Weather Constraint may be applicable in this situation, since other cold weather packages are “not broadly implemented at generating units that comparable unit types in regions that experience similar winter climate conditions…” However, the Technical Rationale and Justification for EOP-012-2 states that “A declaration that no further corrective actions will be taken is expected to be used sparingly.” “Sparingly” seems to be an understated term, since this may be a common declaration for turbines that are operating in extreme climates.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT will pass on the Hydro-Quebec’s recommendations for future improvements to the standard.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	
Document Name	

Comment

Thank you for the opportunity to comment.

Likes 0	
Dislikes 0	

Response

Thank you for your comment.

Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	
Document Name	
Comment	
PG&E recommends the SDT add the R2 Footnote 1 and R3 Footnote 2 (exemption language for operating below 32) to be applicable to R5. If the generator is exempt per the footnote, and therefore R2 and R3 are not applicable, what would be the training objective? It is imperative to ensure training is applicable to ensure focus of personnel and resources on highest priorities. It is for this reason PG&E is voting NEGATIVE on the Standard ballot.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT finds that a large majority of industry is in agreement with the R5 language. The associate plan and training could be commensurate with the potential to experience freezing temperatures. The intent of the language is to ensure that entities are trained to reliably operate in cold temperatures.	
Ruchi Shah - AES - AES Corporation - 5	
Answer	
Document Name	
Comment	
AES Clean Energy supports NAGF's comments. As mentioned in the response to Question 1, AES Clean Energy strongly recommends that the ERO develop an implementation guidance or a CMEP Practice Guide in collaboration with industry, particularly on the interpretations	

of each requirement as applicable to generator types. Ideally, this should be done by the proposed effective date of the standard to avoid inconsistent interpretation issues that may arise during CMEP engagements with industry after the effective date of EOP-012-2.

Additional comments:

- New sub-requirement: R1.2.1.3 Start-up issues
    - With the addition of new sub-requirements, will NERC consider including the same requirement in IRO-010 or TOP-003 as well? Currently, based on TOP-003-5 that became effective on 4/1/2023, there is no similar sub-requirement for BA and TOP to require similar data from GO/GOP. Therefore, addition of this sub-requirement in EOP-012-2 will lead to administrative work that may have no effect on reliability if it's not being requested or utilized. Although it is specified in the new TOP-002-5 R8 where it applies to the BA only, there is no corresponding requirement for the BA in TOP-003. It is only assumed that BA will need the data and list it in their data specification.
    - Recommend drafting team to include examples in Technical Rationale regarding "Start-up issues" and differentiate between synchronous generators and IBRs.
    - Reference to EOP-012-1 on page 9 of Technical Rationale – should it be changed to EOP-012-2?
        - *The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of* ***EOP-012-1*** *(October 1, 2027).*
    - *Technical Rationale for Generator Cold Weather Critical Component: With the exclusion language added for any component and/or system located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32F, there is room for interpretation by registered entities that this could include inverters and* battery energy storage systems (BESS). Typically, inverters and BESS are in containers and their temperatures are controlled via HVAC systems. We recommend the drafting team look into this and provide further details on what is considered "permanent building".

Likes 0	
Dislikes 0	
Response	

Thank you for your comments. The SDT discussed possible modifications, but it was not the appropriate time to pursue them. The SDT would encourage the commenter to submit a SAR if they believe it would enhance reliability to have that specific item addressed. The SDT discussed possible modifications to TOP-003 and IRO-010, but it is outside the scope of this phase of the SDT's work. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. The SDT made modifications to the TR for additional clarity around permanent buildings and heat sources. GOs that may experience issues starting up in cold weather will document those issues in order to ensure that potential start-up concerns can be readily communicated to the BA/TOP/RC. A review of the TR found the EOP-012-1 reference is correct.	
Larry Heckert - Alliant Energy Corporation Services, Inc. - 4	
Answer	
Document Name	
Comment	
Alliant Energy supports the comments submitted by the MRO NSRF.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Robert Follini - Avista - Avista Corporation - 3	
Answer	
Document Name	
Comment	
EEI provided a proposed comment here, however it does not affect Avista and is not a strong statement. I don't think we should include it here.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment.	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	
Document Name	
Comment	
MRO NSRF genuinely appreciates the hard work that the Standard Drafting Team has put into this drafting process. Their response to industry comments is a testament to the success of the Standard Drafting Process and MRO NSRF supports the approval of this draft based solely on the merits of the proposed language. However, MRO NSRF is concerned about the addition of R1.2.1.3. We feel that this addition increases documentation burden but does not add any reliability value, additionally this issue would be handled by the CAP process if there are startup issues that are classified as Generator Cold Weather Reliability Events.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. GOs that may experience issues starting up in cold weather will document those issues in order to ensure that potential start-up concerns can be readily communicated to the BA/TOP/RC.	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	
Document Name	
Comment	

Black Hills Corporation supports EEI and NAGF additional comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to EEI and NAGF.	
Andrew Smith - APS - Arizona Public Service Co. - 5	
Answer	
Document Name	
Comment	
AZPS has no additional comments.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Dane Rogers - Dane Rogers On Behalf of: Donald Hargrove, OGE Energy - Oklahoma Gas and Electric Co., 3, 1, 5, 6; - Dane Rogers, Group Name OG&E	
Answer	
Document Name	
Comment	
OG&E supports comments submitted by MRO NSRF.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to MRO NSRF.	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	
Document Name	
Comment	
AECI supports comments submitted by ACES.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment, please see response to ACES.	
Donald Lock - Talen Generation, LLC - 5	
Answer	
Document Name	
Comment	
It is unclear what is to be reported as R.1.2.1.3 “Start-up issues.” This should apparently be, “Normal start-up time(s), e.g. cold, warm and hot, and winter weather issues that can cause these times to be extended.” This need is particularly acute where the ISO does not allow declaring true start-up times, causing the market and regulatory criteria for identifying startup failures to be greatly different. The reference to good utility practice in the Generator Cold Weather Constraint section of the Technical Rationale should be expunged. GO/GOPs in deregulated markets are not public utility companies, as confirmed in a recent landmark appeals court ruling	

(https://www.law.com/texaslawyer/2023/12/15/power-generator-companies-get-landmark-decision-in-winter-storm-uri-mdl/?slreturn=20240018071757).

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. GOs that may experience issues starting up in cold weather will document those issues in order to ensure that potential start-up concerns can be readily communicated to the BA/TOP/RC.

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	
Document Name	

Comment

1. Remove the heated building exclusion from the definition of Generator Cold Weather Critical Component.

a. The expanded definition for Generator Cold Weather Critical Component is misleading and does not align with the explanation provided in the technical rationale document for EOP-012-2 or with statements made by the Project 2021-07 team during public webinars. From the technical rationale document and webinar comments, the intent was to exclude critical components inside buildings with dedicated building heating equipment. The new definition employs the phrase “heating source that regularly maintains the space”. This phrasing opens the definition to heating sources that are not devices dedicated to building heating.

b. Additionally, the new definition does not support equipment reliability. The exclusion is based on the idea that freeze protection in the form of a building and dedicated heating is already in place to protect critical equipment. By excluding these components, the new definition would also exclude the associated freeze protection measures from requirements R4.5 which requires annual maintenance on freeze protection measures for critical components. Requirement R4.5 mandates maintenance activities to ensure improved equipment reliability, prevent winter reliability events, and prevent CAP entries on events. Excluding buildings and their dedicated heating equipment from the requirements of R4.5 puts the industry at risk of more winter reliability events and does not align with operating experience events learned during Winter Storm Uri related to open doors, windows, etc.

2. Requirements R4 and R5 should state that stations with an ECWT above 32oF are exempt from requirements R4.3, R4.4, R4.5, and R5.

a. Stations with an ECWT above 32oF cannot meet the requirements of R4 and R5 based on the current definitions for a Generator Cold Weather Critical Component, a Generator Cold Weather Reliability Event, and the wording of requirements R4 and R5.

b. Requirement R4 establishes the minimum content requirements for a station’s Cold Weather Preparedness Plan. These minimums are:

i. R4.1: The station’s ECWT.

ii. R4.2: Stations information required in R1.2.

iii. R4.3: A list of Generator Cold Weather Critical Components.

iv. R4.4: A list of freeze protection measures on the Generator Cold Weather Critical Components.

v. R4.5: Annual inspection and maintenance of the identified freeze protection measures.

c. Requirement R5 requires the training of all maintenance or operations personal responsible for implementing the Cold Weather Preparedness Plan.

d. The only actionable item in R4 that can be implemented is requirement R4.5.

e. Per the current definitions for a Generator Cold Weather Critical Component and for a Generator Cold Weather Reliability Event,

i. Generator Cold Weather Reliability Events only occur at or above the ECWT.

ii. Generator Cold Weather Critical Components must be able to cause a Generator Cold Weather Reliability Event.

f. A station with an ECWT above 32oF cannot have a Generator Cold Weather Reliability Event since the freeze related event would need to occur at a temperature warmer than 32oF.

g. Since the station cannot identify any Generator Cold Weather Critical Components since they cannot meet the requirements of R4.3. h. The station cannot meet the requirements of R4.4. If no Generator Cold Weather Critical Components exist, protection on those critical components cannot be identified. i. If no freeze protection measures have been identified under R4.4, the station cannot perform annual inspection and maintenance on measures that do not exits. This means the stations cannot meet the requirements of R4.5. j. If R4.5 is the only actionable part of requirement R4, stations with an ECWT above 32oF cannot identify the maintenance and operations personnel who implement the actionable items in the plan if no actionable items exist under R4.5. Stations with an ECWT above 32oF cannot meet R5 since the training audience as defined in R5 does not exist	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The intent of the SDT's approach within the Technical Rationale was to recognize that equipment within buildings are, by virtue of the building and associated heat source, protected. The SDT therefore believes the definition of GCWCC sufficiently addresses components inside permanent building with a heating source. The SDT has updated the TR to include additional clarity around buildings and heat sources in the Generator Cold Weather Critical Component definition. Regarding R5, if an entity has an ECWT above 32 degrees, then it does not have any Cold Weather Critical Components. The entity is not expected to operate below its ECWT, and therefore, no freeze protection methods would be applicable. This would be documented in the cold weather plan. In the original EOP-011, the training requirement applied to all units, without exception. The FERC order did not approve the implementation plan for EOP-012-1 until exceptions were aligned. A cold weather plan is required of all units.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	
Document Name	
Comment	

None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
James Keele - Entergy - 3	
Answer	
Document Name	
Comment	
R1.2.1.3 - The term “start-up issues” is vague and not clearly defined in the standard. R1.2.2 - The phrase “concurrent wind speed and precipitation” appears to be optional in the 1st two instances but required in the 3rd option. Was this the intent?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. GOs that may experience issues starting up in cold weather will document those issues in order to ensure that potential start-up concerns can be readily communicated to the BA/TOP/RC. Regarding R1.2.2, if the concurrent wind speed and precipitation are available they will be used.	
Alison MacKellar - Constellation - 5	
Answer	

Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	
Document Name	
Comment	
R1.2.1.3 - The term “start-up issues” is vague and not clearly defined in the standard. R1.2.2 - The phrase “concurrent wind speed and precipitation” appears to be optional in the 1st two instances but required in the 3rd option. Was this the intent?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The addition of R1.2.1.3 was included to match TOP-002 R8 and allow GOs to have information readily available should it be requested. GOs that may experience issues starting up in cold weather will document those issues in order to ensure	

that potential start-up concerns can be readily communicated to the BA/TOP/RC. Regarding R1.2.2, if the concurrent wind speed and precipitation are available they will be used.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	
Document Name	
Comment	
NA	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment.	
Thomas Foltz - AEP - 5	
Answer	
Document Name	
Comment	
AEP recommends revising the Technical Rationale document to provide detail-of and reasoning-behind the “12 continuous hours” language used in the first and second bullets of R2. Any insight behind exactly what that phrase contributes, and how, would be beneficial.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT modified the TR language to provide requested clarity related to “12 continuous hours”.	

Kimberly Turco - Constellation - 6	
Answer	
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf on Constellation segements 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments.	

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Reminder
Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Additional Ballots and Non-binding Poll Open through January 22, 2024

Now Available

Additional ballots and non-binding poll of the associated Violation Risk Factors and Violation Severity Levels for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Phase II** are open through **8 p.m. Eastern, Monday, January 22, 2024** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

The standard drafting team's considerations of the responses received from the last comment period are reflected in this draft of the standard.

Reminder Regarding Corporate RBB Memberships

Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact ballotadmin@nerc.net to assist with the removal of any duplicate registrations.

Balloting

Members of the ballot pools associated with this project can log in and submit their votes by accessing the Standards Balloting and Commenting System (SBS) here.

Note: Votes cast in previous ballots will not carry over to additional ballots. It is the responsibility of the registered voter in the ballot pools to place votes again. To ensure a quorum is reached, if you do not want to vote affirmative or negative, cast an abstention.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*

- *Please be mindful of ballot and comment period closing dates. We ask to* ***allow at least 48 hours*** *for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts* ***prior to the last day*** *of a comment/ballot period.*

Next Steps

The ballot results will be announced and posted on the project page. The drafting team will review all responses received during the comment period and determine the next steps of the project.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination observer list” in the Description Box.

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RELIABILITY CORPORATION

Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Formal Comment Period Open through January 22, 2024

Now Available

A 13-day formal comment period for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2,** is open through **8 p.m. Eastern, Monday, January 22, 2024** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

The standard drafting team's considerations of the responses received from the previous comment period are reflected in this draft of the standard.

Reminder Regarding Corporate RBB Memberships
Under the NERC Rules of Procedure, each entity and its affiliates is collectively permitted one voting membership per Registered Ballot Body Segment. Each entity that undergoes a change in corporate structure (such as a merger or acquisition) that results in the entity or affiliated entities having more than the one permitted representative in a particular Segment must withdraw the duplicate membership(s) prior to joining new ballot pools or voting on anything as part of an existing ballot pool. Contact ballotadmin@nerc.net to assist with the removal of any duplicate registrations.

Commenting
Use the Standards Balloting and Commenting System (SBS) to submit comments. An unofficial Word version of the comment form is posted on the project page.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*
- *Please be mindful of ballot and comment period closing dates. We ask to **allow at least 48 hours** for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts **prior to the last day** of a comment/ballot period.*

Next Steps

Additional ballots for the standard and implementation plan, and non-binding poll of the associated Violation Risk Factors and Violation Severity Levels, will be conducted **January 16 - 22, 2024**.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410. Subscribe to this project's observer mailing list by selecting "NERC Email Distribution Lists" from the "Service" drop-down menu and specify "Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination observer list" in the Description Box.

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BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/312)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 AB 3 ST
Voting Start Date: 1/16/2024 12:01:00 AM
Voting End Date: 1/22/2024 8:00:00 PM
Ballot Type: ST
Ballot Activity: AB
Ballot Series: 3
Total # Votes: 264
Total Ballot Pool: 301
Quorum: 87.71
Quorum Established Date: 1/22/2024 1:50:20 PM
Weighted Segment Value: 81.02

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	78	1	55	0.917	5	0.083	0	9	9
Segment: 2	7	0.7	0	0	7	0.7	0	0	0
Segment: 3	68	1	48	0.906	5	0.094	0	7	8
Segment: 4	17	1	13	0.929	1	0.071	0	2	1
Segment: 5	74	1	51	0.864	8	0.136	0	4	11
Segment: 6	48	1	32	0.889	4	0.111	0	5	7
Segment: 7	1	0.1	1	0.1	0	0	0	0	0
Segment: 8	1	0	0	0	0	0	0	1	0

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.5	5	0.5	0	0	0	1	1
Totals:	301	6.3	205	5.104	30	1.196	0	29	37

BALLOT POOL MEMBERS

Show All entries

Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Affirmative	N/A
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Affirmative	N/A
1	Ameren - Ameren Services	Tamara Evey		Affirmative	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Affirmative	N/A
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A
1	Basin Electric Power Cooperative	David Rudolph		Affirmative	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu		Abstain	N/A
1	Berkshire Hathaway Energy - MidAmerican Energy Co.	Terry Harbour		Affirmative	N/A
1	Black Hills Corporation	Micah Runner		Affirmative	N/A
1	Bonneville Power Administration	Kamala Rogers-Holliday		Abstain	N/A
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Affirmative	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Affirmative	N/A
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Affirmative	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Affirmative	N/A
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Affirmative	N/A
1	Glencoe Light and Power Commission	Terry Volkmann		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Great River Energy	Gordon Pietsch		Affirmative	N/A
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Affirmative	N/A
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Affirmative	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		None	N/A
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Affirmative	N/A
1	Muscatine Power and Water	Andrew Kurriger		Affirmative	N/A
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Nebraska Public Power District	Jamison Cawley		Affirmative	N/A
1	New York Power Authority	Daniel Valle		Affirmative	N/A
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Alison Nickells		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Affirmative	N/A
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Affirmative	N/A
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		Affirmative	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Negative	Comments Submitted
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A
1	Santee Cooper	Chris Wagner		Negative	Comments Submitted
1	SaskPower	Wayne Guttormson		None	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Affirmative	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Affirmative	N/A
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Abstain	N/A
1	Tennessee Valley Authority	David Plumb		Affirmative	N/A
1	Tri-State G and T Association, Inc.	Donna Wood		Affirmative	N/A
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	California ISO	Darcy O'Connell		Negative	Third-Party Comments
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
2	Independent Electricity System Operator	Helen Lainis		Negative	Third-Party Comments
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Negative	Third-Party Comments
2	Midcontinent ISO, Inc.	Bobbi Welch		Negative	Third-Party Comments
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Negative	Third-Party Comments
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Negative	Third-Party Comments
3	AEP	Kent Feliks		Affirmative	N/A
3	Ameren - Ameren Services	David Jendras Sr	Mark Fowler	Affirmative	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Affirmative	N/A
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	None	N/A
3	BC Hydro and Power Authority	Ming Jiang		Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Affirmative	N/A
3	Black Hills Corporation	Josh Combs		Affirmative	N/A
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Third-Party Comments

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Affirmative	N/A
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		Affirmative	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	George Kirschner		None	N/A
3	JEA	Marilyn Williams		None	N/A
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		None	N/A
3	Lincoln Electric System	Sam Christensen		Affirmative	N/A
3	Los Angeles Department of Water and Power	Fausto Serratos		Abstain	N/A
3	M and A Electric Power Cooperative	Gary Dollins		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Manitoba Hydro	Mike Smith		Negative	Comments Submitted
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Affirmative	N/A
3	Muscatine Power and Water	Seth Shoemaker		Affirmative	N/A
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Affirmative	N/A
3	New York Power Authority	David Rivera		Affirmative	N/A
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Affirmative	N/A
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Affirmative	N/A
3	Orlando Utilities Commission	Ballard Mutters		None	N/A
3	OTP - Otter Tail Power Company	Wendi Olson		Affirmative	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Negative	Comments Submitted
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A
3	Santee Cooper	Vicky Budreau		Negative	Comments Submitted
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Abstain	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A
3	Snohomish County PUD No. 1	Holly Chaney		Affirmative	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Affirmative	N/A
3	Tennessee Valley Authority	Ian Grant		Affirmative	N/A
3	Tri-State G and T Association, Inc.	Ryan Walter		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Wabash Valley Power Association	Scott Berry		Affirmative	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Affirmative	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Third-Party Comments
4	CMS Energy - Consumers Energy Company	Aric Root		None	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Katrina Lyons		Affirmative	N/A
4	MGE Energy - Madison Gas and Electric Co.	Adam Lee		Affirmative	N/A
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Affirmative	N/A
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Affirmative	N/A
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Affirmative	N/A
5	AES - AES Corporation	Ruchi Shah		Negative	Comments Submitted
5	Ameren - Ameren Missouri	Sam Dwyer		Affirmative	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Affirmative	N/A
5	Basin Electric Power Cooperative	Amanda Wangler		None	N/A
5	BC Hydro and Power Authority	Helen Hamilton Harding		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Affirmative	N/A
5	Black Hills Corporation	Sheila Suurmeier	Carly Miller	Affirmative	N/A
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Third-Party Comments
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		None	N/A
5	Dairyland Power Cooperative	Tommy Drea		Affirmative	N/A
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		Affirmative	N/A
5	Duke Energy	Dale Goodwine		Affirmative	N/A
5	Enel Green Power	Natalie Johnson		None	N/A
5	Entergy - Entergy Services, Inc.	Gail Golden		None	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		Affirmative	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Affirmative	N/A
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Affirmative	N/A
5	Lakeland Electric	Carmen Rodriguez		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Lincoln Electric System	Brittany Millard		Affirmative	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Affirmative	N/A
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Affirmative	N/A
5	Nebraska Public Power District	Ronald Bender		Affirmative	N/A
5	New York Power Authority	Zahid Qayyum		Affirmative	N/A
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Affirmative	N/A
5	NRG - NRG Energy, Inc.	Patricia Lynch		Affirmative	N/A
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A
5	Oglethorpe Power Corporation	Donna Johnson		Affirmative	N/A
5	Omaha Public Power District	Kayleigh Wilkerson		Affirmative	N/A
5	Ontario Power Generation Inc.	Constantin Chitescu		Negative	Comments Submitted
5	Orlando Utilities Commission	Dania Colon		None	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Affirmative	N/A
5	Platte River Power Authority	Jon Osell		Affirmative	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Affirmative	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Negative	Comments Submitted
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Abstain	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Affirmative	N/A
5	Talen Generation, LLC	Donald Lock		Negative	Comments Submitted
5	Tennessee Valley Authority	Darren Boehm		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Affirmative	N/A
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	Vistra Energy	Daniel Roethemeyer		Affirmative	N/A
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Mathew Miller		Affirmative	N/A
6	Ameren - Ameren Services	Robert Quinlivan		Affirmative	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman	Brandon Smith	Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		None	N/A
6	Black Hills Corporation	Rachel Schuldt		Affirmative	N/A
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		None	N/A
6	Con Ed - Consolidated Edison Co. of New York	Jason Chandler		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Affirmative	N/A
6	Entergy	Julie Hall		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	Third-Party Comments
6	Lincoln Electric System	Eric Ruskamp		Affirmative	N/A
6	Manitoba Hydro	Kelly Bertholet		Negative	Comments Submitted
6	Muscatine Power and Water	Nicholas Burns		Affirmative	N/A
6	New York Power Authority	Shelly Dineen		Affirmative	N/A
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	Comments Submitted
6	NRG - NRG Energy, Inc.	Martin Sidor		Affirmative	N/A
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Affirmative	N/A
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Affirmative	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Negative	Comments Submitted
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Abstain	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Affirmative	N/A
6	Tennessee Valley Authority	Armando Rodriguez		Affirmative	N/A
6	WEC Energy Group, Inc.	David Boeshaar		None	N/A
6	Western Area Power Administration	Jennifer Neville		Affirmative	N/A
6	Xcel Energy, Inc.	Steve Szablya		None	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		None	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Affirmative	N/A

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Showing 1 to 301 of 301 entries

BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/312)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 AB 3 OT
Voting Start Date: 1/16/2024 12:01:00 AM
Voting End Date: 1/22/2024 8:00:00 PM
Ballot Type: OT
Ballot Activity: AB
Ballot Series: 3
Total # Votes: 259
Total Ballot Pool: 297
Quorum: 87.21
Quorum Established Date: 1/22/2024 1:51:48 PM
Weighted Segment Value: 88.62

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	76	1	53	0.898	6	0.102	0	8	9
Segment: 2	6	0.6	5	0.5	1	0.1	0	0	0
Segment: 3	67	1	47	0.887	6	0.113	0	6	8
Segment: 4	16	1	12	0.923	1	0.077	0	2	1
Segment: 5	75	1	51	0.864	8	0.136	0	4	12
Segment: 6	48	1	30	0.833	6	0.167	0	5	7
Segment: 7	1	0.1	1	0.1	0	0	0	0	0
Segment: 8	1	0	0	0	0	0	0	1	0

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.4	4	0.4	0	0	0	2	1
Totals:	297	6.1	203	5.406	28	0.694	0	28	38

BALLOT POOL MEMBERS

Show All entries

Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Affirmative	N/A
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Affirmative	N/A
1	Ameren - Ameren Services	Tamara Evey		Affirmative	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Affirmative	N/A
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A
1	Basin Electric Power Cooperative	David Rudolph		Affirmative	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu		Abstain	N/A
1	Black Hills Corporation	Micah Runner		Negative	Comments Submitted
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Affirmative	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Affirmative	N/A
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Affirmative	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Affirmative	N/A
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Affirmative	N/A
1	Glencoe Light and Power Commission	Terry Volkmann		Affirmative	N/A
1	Great River Energy	Gordon Pietsch		Affirmative	N/A
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Affirmative	N/A
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Affirmative	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		None	N/A
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Affirmative	N/A
1	Muscatine Power and Water	Andrew Kurriger		Affirmative	N/A
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Affirmative	N/A
1	Nebraska Public Power District	Jamison Cawley		Affirmative	N/A
1	New York Power Authority	Daniel Valle		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Alison Nickells		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Affirmative	N/A
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Affirmative	N/A
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		Affirmative	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Affirmative	N/A
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		None	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A
1	Santee Cooper	Chris Wagner		Negative	Comments Submitted
1	SaskPower	Wayne Guttormson		None	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Affirmative	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Affirmative	N/A
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Abstain	N/A
1	Tennessee Valley Authority	David Plumb		Negative	Third-Party Comments
1	Tri-State G and T Association, Inc.	Donna Wood		Affirmative	N/A
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Affirmative	N/A
2	Independent Electricity System Operator	Helen Lainis		Negative	Third-Party Comments
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Affirmative	N/A
2	Midcontinent ISO, Inc.	Bobbi Welch		Affirmative	N/A
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Affirmative	N/A
3	AEP	Kent Feliks		Affirmative	N/A
3	Ameren - Ameren Services	David Jendras Sr	Mark Fowler	Affirmative	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Affirmative	N/A
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	None	N/A
3	BC Hydro and Power Authority	Ming Jiang		Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Affirmative	N/A
3	Black Hills Corporation	Josh Combs		Negative	Comments Submitted
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Third-Party Comments
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Colorado Springs Utilities	Hillary Dobson		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Affirmative	N/A
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		Affirmative	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	George Kirschner		None	N/A
3	JEA	Marilyn Williams		None	N/A
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		None	N/A
3	Lincoln Electric System	Sam Christensen		Affirmative	N/A
3	M and A Electric Power Cooperative	Gary Dollins		Affirmative	N/A
3	Manitoba Hydro	Mike Smith		Negative	Comments Submitted
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Affirmative	N/A
3	Muscatine Power and Water	Seth Shoemaker		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Affirmative	N/A
3	New York Power Authority	David Rivera		Affirmative	N/A
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Affirmative	N/A
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Affirmative	N/A
3	OTP - Otter Tail Power Company	Wendi Olson		Affirmative	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Affirmative	N/A
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A
3	Santee Cooper	Vicky Budreau		Negative	Comments Submitted
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Abstain	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A
3	Snohomish County PUD No. 1	Holly Chaney		Affirmative	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Affirmative	N/A
3	Tennessee Valley Authority	Ian Grant		Negative	Third-Party Comments
3	Tri-State G and T Association, Inc.	Ryan Walter		Affirmative	N/A
3	Wabash Valley Power Association	Scott Berry		Affirmative	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Affirmative	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Third-Party Comments
4	CMS Energy - Consumers Energy Company	Aric Root		None	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Katrina Lyons		Affirmative	N/A
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Affirmative	N/A
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Affirmative	N/A
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Affirmative	N/A
5	AES - AES Corporation	Ruchi Shah		Affirmative	N/A
5	Ameren - Ameren Missouri	Sam Dwyer		Affirmative	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Affirmative	N/A
5	Basin Electric Power Cooperative	Amanda Wangler		None	N/A
5	BC Hydro and Power Authority	Helen Hamilton Harding		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Affirmative	N/A
5	Black Hills Corporation	Sheila Suurmeier	Carly Miller	Negative	Comments Submitted
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Third-Party Comments
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		None	N/A
5	Dairyland Power Cooperative	Tommy Drea		Affirmative	N/A
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Duke Energy	Dale Goodwine		Affirmative	N/A
5	Enel Green Power	Natalie Johnson		None	N/A
5	Entergy - Entergy Services, Inc.	Gail Golden		None	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		Affirmative	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Affirmative	N/A
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Affirmative	N/A
5	Lakeland Electric	Carmen Rodriguez		None	N/A
5	Lincoln Electric System	Brittany Millard		Affirmative	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Affirmative	N/A
5	Muscatine Power and Water	Neal Nelson		Affirmative	N/A
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Nebraska Public Power District	Ronald Bender		Affirmative	N/A
5	New York Power Authority	Zahid Qayyum		Affirmative	N/A
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Affirmative	N/A
5	NRG - NRG Energy, Inc.	Patricia Lynch		Affirmative	N/A
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A
5	Oglethorpe Power Corporation	Donna Johnson		Affirmative	N/A
5	Omaha Public Power District	Kayleigh Wilkerson		Affirmative	N/A
5	Ontario Power Generation Inc.	Constantin Chitescu		Negative	Comments Submitted
5	Orlando Utilities Commission	Dania Colon		None	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Affirmative	N/A
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Affirmative	N/A
5	Platte River Power Authority	Jon Osell		Affirmative	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Affirmative	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Negative	Comments Submitted
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Abstain	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Affirmative	N/A
5	Talen Generation, LLC	Donald Lock		None	N/A
5	Tennessee Valley Authority	Darren Boehm		Negative	Third-Party Comments
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Affirmative	N/A
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	Vistra Energy	Daniel Roethemeyer		Affirmative	N/A
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Mathew Miller		Affirmative	N/A
6	Ameren - Ameren Services	Robert Quinlivan		Affirmative	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman	Brandon Smith	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		None	N/A
6	Black Hills Corporation	Rachel Schuldt		Negative	Comments Submitted
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		None	N/A
6	Con Ed - Consolidated Edison Co. of New York	Jason Chandler		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Affirmative	N/A
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	Third-Party Comments
6	Lincoln Electric System	Eric Ruskamp		Affirmative	N/A
6	Manitoba Hydro	Kelly Bertholet		Negative	Comments Submitted
6	Muscatine Power and Water	Nicholas Burns		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	New York Power Authority	Shelly Dineen		Affirmative	N/A
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	Comments Submitted
6	NRG - NRG Energy, Inc.	Martin Sidor		Affirmative	N/A
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Affirmative	N/A
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Affirmative	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Negative	Comments Submitted

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Abstain	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Affirmative	N/A
6	Tennessee Valley Authority	Armando Rodriguez		Negative	Third-Party Comments
6	WEC Energy Group, Inc.	David Boeshaar		None	N/A
6	Western Area Power Administration	Jennifer Neville		Affirmative	N/A
6	Xcel Energy, Inc.	Steve Szablya		None	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		None	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Abstain	N/A

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Showing 1 to 297 of 297 entries

BALLOT RESULTS

Comment: View Comment Results (/CommentResults/Index/312)
Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 | Non-Binding Poll AB 3 NB
Voting Start Date: 1/16/2024 12:01:00 AM
Voting End Date: 1/22/2024 8:00:00 PM
Ballot Type: NB
Ballot Activity: AB
Ballot Series: 3
Total # Votes: 241
Total Ballot Pool: 283
Quorum: 85.16
Quorum Established Date: 1/22/2024 2:40:20 PM
Weighted Segment Value: 89.73

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes	Negative Fraction	Abstain	No Vote
Segment: 1	72	1	44	0.917	4	0.083	16	8
Segment: 2	6	0.3	0	0	3	0.3	3	0
Segment: 3	65	1	41	0.932	3	0.068	11	10
Segment: 4	15	1	11	0.917	1	0.083	2	1
Segment: 5	72	1	41	0.872	6	0.128	12	13
Segment: 6	44	1	24	0.923	2	0.077	9	9
Segment: 7	1	0.1	1	0.1	0	0	0	0
Segment: 8	1	0	0	0	0	0	1	0
Segment: 9	0	0	0	0	0	0	0	0

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes	Negative Fraction	Abstain	No Vote
Segment: 10	7	0.4	4	0.4	0	0	2	1
Totals:	283	5.8	166	5.061	19	0.739	56	42

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Abstain	N/A
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Affirmative	N/A
1	Ameren - Ameren Services	Tamara Evey		Abstain	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Affirmative	N/A
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		None	N/A
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A
1	Basin Electric Power Cooperative	David Rudolph		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	BC Hydro and Power Authority	Adrian Andreoiu		Abstain	N/A
1	Black Hills Corporation	Micah Runner		Affirmative	N/A
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Affirmative	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Affirmative	N/A
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Affirmative	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Affirmative	N/A
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Abstain	N/A
1	Glencoe Light and Power Commission	Terry Volkmann		Affirmative	N/A
1	Great River Energy	Gordon Pietsch		Affirmative	N/A
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	Comments Submitted
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Affirmative	N/A
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Abstain	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Affirmative	N/A
1	Muscatine Power and Water	Andrew Kurriger		Affirmative	N/A
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Abstain	N/A
1	Nebraska Public Power District	Jamison Cawley		Abstain	N/A
1	New York Power Authority	Daniel Valle		Affirmative	N/A
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Alison Nickells		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Affirmative	N/A
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	Comments Submitted
1	Platte River Power Authority	Marissa Archie		Affirmative	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Negative	Comments Submitted
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		None	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A
1	Santee Cooper	Chris Wagner		Abstain	N/A
1	SaskPower	Wayne Guttormson		None	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Affirmative	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Affirmative	N/A
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Abstain	N/A
1	Tennessee Valley Authority	David Plumb		Abstain	N/A
1	Tri-State G and T Association, Inc.	Donna Wood		Affirmative	N/A
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	Comments Submitted
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	Comments Submitted
2	Independent Electricity System Operator	Helen Lainis		Abstain	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Negative	Comments Submitted
2	Midcontinent ISO, Inc.	Bobbi Welch		Negative	Comments Submitted
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Abstain	N/A
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Abstain	N/A
3	AEP	Kent Feliks		Affirmative	N/A
3	Ameren - Ameren Services	David Jendras Sr	Mark Fowler	Abstain	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Affirmative	N/A
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	None	N/A
3	BC Hydro and Power Authority	Ming Jiang		Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Affirmative	N/A
3	Black Hills Corporation	Josh Combs		Affirmative	N/A
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	Comments Submitted
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Colorado Springs Utilities	Hillary Dobson		None	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Affirmative	N/A
3	Entergy	James Keele		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		Affirmative	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	George Kirschner		None	N/A
3	JEA	Marilyn Williams		None	N/A
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		None	N/A
3	Lincoln Electric System	Sam Christensen		Abstain	N/A
3	M and A Electric Power Cooperative	Gary Dollins		Affirmative	N/A
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Affirmative	N/A
3	Muscatine Power and Water	Seth Shoemaker		Affirmative	N/A
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Abstain	N/A
3	New York Power Authority	David Rivera		Affirmative	N/A
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Affirmative	N/A
3	Orlando Utilities Commission	Ballard Mutters		None	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	Comments Submitted
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Negative	Comments Submitted
3	PPL - Louisville Gas and Electric Co.	James Frank		None	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A
3	Santee Cooper	Vicky Budreau		Abstain	N/A
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Abstain	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Snohomish County PUD No. 1	Holly Chaney		Affirmative	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Affirmative	N/A
3	Tennessee Valley Authority	Ian Grant		Abstain	N/A
3	Tri-State G and T Association, Inc.	Ryan Walter		Affirmative	N/A
3	Wabash Valley Power Association	Scott Berry		Affirmative	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Affirmative	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	Comments Submitted
4	CMS Energy - Consumers Energy Company	Aric Root		None	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Katrina Lyons		Affirmative	N/A
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Affirmative	N/A
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Abstain	N/A
5	AES - AES Corporation	Ruchi Shah		Negative	Comments Submitted
5	Ameren - Ameren Missouri	Sam Dwyer		Abstain	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Affirmative	N/A
5	BC Hydro and Power Authority	Helen Hamilton Harding		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Affirmative	N/A
5	Black Hills Corporation	Sheila Suurmeier	Carly Miller	Affirmative	N/A
5	Bonneville Power Administration	Christopher Siewert		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	Comments Submitted
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		None	N/A
5	Dairyland Power Cooperative	Tommy Drea		Affirmative	N/A
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		Affirmative	N/A
5	Duke Energy	Dale Goodwine		Affirmative	N/A
5	Enel Green Power	Natalie Johnson		None	N/A
5	Entergy - Entergy Services, Inc.	Gail Golden		None	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		Affirmative	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Affirmative	N/A
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	Comments Submitted
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Lakeland Electric	Carmen Rodriguez		None	N/A
5	Lincoln Electric System	Brittany Millard		Abstain	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Negative	Comments Submitted
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Abstain	N/A
5	Nebraska Public Power District	Ronald Bender		Abstain	N/A
5	New York Power Authority	Zahid Qayyum		Affirmative	N/A
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Affirmative	N/A
5	NRG - NRG Energy, Inc.	Patricia Lynch		Affirmative	N/A
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A
5	Oglethorpe Power Corporation	Donna Johnson		Affirmative	N/A
5	Omaha Public Power District	Kayleigh Wilkerson		Affirmative	N/A
5	Ontario Power Generation Inc.	Constantin Chitescu		Affirmative	N/A
5	Orlando Utilities Commission	Dania Colon		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	OTP - Otter Tail Power Company	Stacy Wahlund		Affirmative	N/A
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	Comments Submitted
5	Pattern Operators LP	George E Brown		Affirmative	N/A
5	Platte River Power Authority	Jon Osell		Affirmative	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		None	N/A
5	PSEG Nuclear LLC	Tim Kucey		Abstain	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Abstain	N/A
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Abstain	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Affirmative	N/A
5	Talen Generation, LLC	Donald Lock		None	N/A
5	Tennessee Valley Authority	Darren Boehm		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Affirmative	N/A
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	Comments Submitted
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Abstain	N/A
6	AEP	Mathew Miller		Abstain	N/A
6	Ameren - Ameren Services	Robert Quinlivan		Abstain	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman	Brandon Smith	Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		None	N/A
6	Black Hills Corporation	Rachel Schuldt		Affirmative	N/A
6	Bonneville Power Administration	Tanner Brier		None	N/A
6	Con Ed - Consolidated Edison Co. of New York	Jason Chandler		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Affirmative	N/A
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	Comments Submitted
6	Lincoln Electric System	Eric Ruskamp		Abstain	N/A
6	New York Power Authority	Shelly Dineen		Affirmative	N/A
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	Comments Submitted
6	NRG - NRG Energy, Inc.	Martin Sidor		Affirmative	N/A
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Affirmative	N/A
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		None	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Abstain	N/A
6	Public Utility District No. 1 of Chelan County	Anne Kronshage		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Abstain	N/A
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Abstain	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Affirmative	N/A
6	Tennessee Valley Authority	Armando Rodriguez		None	N/A
6	WEC Energy Group, Inc.	David Boeshaar		None	N/A
6	Western Area Power Administration	Jennifer Neville		Affirmative	N/A
6	Xcel Energy, Inc.	Steve Szablya		None	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		None	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Abstain	N/A

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Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the final draft of the proposed standard for a formal 5-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24
5-day final ballot	2/5/24 – 2/9/24

Anticipated Actions	Date
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component – Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event – One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. **Functional Entities:**

   4.1.1. Generator Owner

   4.1.2. Generator Operator

   4.2. **Facilities:**

   4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following Bulk Electric System (BES) resources:

   4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

   4.2.1.2. A Blackstart Resource, identified in the BES definition, inclusion I3.

5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or
- Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature under Requirement R1 Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]

4.2. The generating unit cold weather data, as determined in Requirement R1.2;

4.3. Documentation identifying Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at

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[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at generating units owned by the Generator Owner; and

6.3. An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the Corrective Action Plan.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.2. Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

7.3. Update the Corrective Action Plan action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each Corrective Action Plan and the completion of actions for each Corrective Action Plan including revision history of each Corrective Action Plan and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed the review and updated operating limitations as needed. Acceptable evidence may include, but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of the review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: “Compliance Enforcement Authority” (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.

- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, "Compliance Monitoring and Enforcement Program" refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 20% of its applicable units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for

	5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.
R4.	The Generator Owner implemented a cold weather preparedness plan(s) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or

	- 5% or less of its total applicable personnel.	- more than 5%, but less than or equal to 10% of its total applicable personnel.	- more than 10%, but less than or equal to 15% of its total applicable personnel.	- more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a Corrective Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the final draft of the proposed standard for a formal 5-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24
5-day final ballot	2/5/24 – 2/9/24

Anticipated Actions	Date
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component – Any generating unit component ~~and/~~or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component ~~and/~~or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event – One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to ~~refer~~ be limited to optimum practices, methods, or technologies, but ~~rather~~are also intended to ~~be~~include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**
2. **Number:** EOP-012-2
3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.
4. **Applicability:**
    4.1. Functional Entities:
        4.1.1. Generator Owner
        4.1.2. Generator Operator
    4.2. Facilities:
        4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following Bulk Electric System (BES) resources:
            4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or
            4.2.1.2. A Blackstart Resource, identified in the BES definition, inclusion I3.
5. **Effective Date:** See Implementation Plan for Project 2021-07 Phase 2.

B. Requirements and Measures

R1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

R2. Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or
- Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature under Requirement R1 Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]

4.2. The generating unit cold weather data, as determined in Requirement R1.2;

4.3. Documentation identifying Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures.

M4. Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at

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[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at generating units owned by the Generator Owner; and

6.3. An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the Corrective Action Plan.

R7. Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.2. Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

7.3. Update the Corrective Action Plan~~,~~ action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each Corrective Action Plan and the completion of actions for each Corrective Action Plan including revision history of each Corrective Action Plan and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed ~~an annual~~the review and updated operating limitations as needed. Acceptable evidence may include, but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of ~~an annual~~the review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall retain data or evidence to support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for Requirements R2 and R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4.
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.

- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	**Moderate VSL**	**High VSL**	**Severe VSL**
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 20% of its applicable units.
R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.
R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for

	5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.
R4.	The Generator Owner implemented a cold weather preparedness plan(s) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement R4.	The Generator Owner had and maintained a cold weather preparedness plan(s) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement R4.
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or

	• 5% or less of its total applicable personnel.	• more than 5%, but less than or equal to 10% of its total applicable personnel.	• more than 10%, but less than or equal to 15% of its total applicable personnel.	• more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a Corrective Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the final draft of the proposed standard for a formal 5-day ballot period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21
45-day formal comment period with ballot	6/5/23 – 7/20/23
35-day formal comment period with additional ballot	10/27/23 – 11/30/23
13-day formal comment period with additional ballot	1/10/24 – 1/22/24
5-day final ballot	2/5/24 – 2/9/24

Anticipated Actions	Date
Board adoption	February 2024

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

Generator Cold Weather Critical Component ~~–~~– Any generating unit component or system, or associated ~~fixed fuel supply component~~Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

Fixed Fuel Supply Component – Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

Generator Cold Weather Reliability Event ~~–~~– One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit ~~and exceeding~~, but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Generator Cold Weather Constraint – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;
- Could not have been expected to accomplish the desired result; or
- Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.

Previously Approved Terms

This section includes previously approved terms from Phase 1. It is included to help with drafting and the posting of EOP-012-2.

Extreme Cold Weather Temperature – The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**

2. **Number:** EOP-012-~~1~~2

3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units.

4. **Applicability:**

   4.1. Functional Entities:

   4.1.1. Generator Owner

   4.1.2. Generator Operator

   4.2. Facilities:

   4.2.1. Bulk Electric System (BES) generating units. For purposes of this standard, the term “generating unit” subject to these requirements refers to the following Bulk Electric System (BES) resources:

   ~~**4.2.1.1** A Bulk Electric System generating unit that commits or is obligated to serve a Balancing Authority load pursuant to a tariff obligation, state requirement as defined by the relevant electric regulatory authority, or other contractual arrangement, rule, or regulation, for a continuous run of four hours or more at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius); or~~

   4.2.1.1. A Bulk Electric System generating resource identified in the BES definition, inclusion I2 and I4; or

   ~~**4.2.1.2**~~ **4.2.1.2.** A Blackstart Resource

   ~~**4.2.2** Exemptions:~~

   ~~Any Bulk Electric System generating unit included under Section 4.2.1 above that has a calculated Extreme Cold Weather Temperature exceeding 32 degrees Fahrenheit (zero degrees Celsius) under Requirement R3 Part 3.1 and as part of~~, identified in the ~~required five year review in Requirement R4 Part 4.1 is exempt from further requirements in this standard~~BES definition, inclusion I3.

   ~~**4.2.2.1** A Bulk Electric System generating unit that is not committed or obligated to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius) for any continuous run of more than four hours, but is called upon to operate for more than four hours in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius).~~

5. Effective Date: See Implementation Plan for Project 2021-07~~.~~ Phase 2.

B. Requirements and Measures

R1. ~~For~~At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]

1.1. Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and

1.1.1. If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s) under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.

1.2. Identify generating unit(s) cold weather data, to include:

1.2.1. Generating unit(s) operating limitations in cold weather to include:

1.2.1.1. Capability and availability;

1.2.1.2. Fuel supply and inventory concerns;

1.2.1.3. Start-up issues;

1.2.1.4. Fuel switching capabilities; and

1.2.1.5. Environmental constraints.

1.2.2. Generating unit(s) minimum:

- ~~)~~Design temperature, and if available, the concurrent wind speed and precipitation;
- Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or
- Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.

M1. Each Generator Owner will have evidence documenting its Extreme Cold Weather Temperature calculation and design information, operating data, or engineering analysis that supports its generating unit minimum temperature.

~~R1.~~R2. Applicable to generating units with a commercial operation date ~~subsequent to [Effective Date of this requirement], the Generator Owner~~on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold

Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[1] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate ~~for~~at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours~~ at the Extreme Cold Weather Temperature for the unit(s), assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Components;~~, or
  - ~~Explain in a declaration any technical, commercial, or~~ (ii) the maximum operational ~~constraints, as defined by the Generator Owner, that preclude the ability to implement appropriate~~duration for intermittent energy resources if less than twelve (12) continuous hours; or
- Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability ~~of operating for twelve (12) hours~~to operate at the ~~documented~~unit(s)' Extreme Cold Weather Temperature~~.~~

~~**M1.** Each Generator Owner will have dated evidence that demonstrates it has the capability to operate in accordance with Requirement R1. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Documentation of cold weather preparedness plan, documentation of design features, any declaration that contains dated documentation to support constraints identified by the Generator Owner.~~

  - ~~For each generating unit(s) in commercial operation prior to [Effective Date of this requirement], the Generator Owner shall ensure its generating unit(s) add new or modify existing freeze protection measures as needed to provide the capability to operate for~~ with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than ~~one (1) hour at the unit(s) Extreme Cold Weather Temperature. Generating unit(s) that are not capable of operating for one (1) hour at its Extreme Cold Weather Temperature shall develop a Corrective Action Plan (CAP) for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3. [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]~~twelve (12) continuous hours, or (ii) the

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[1] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.

M2. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R2, or it has developed a ~~CAP~~Corrective Action Plan for the identified issues. Acceptable evidence may include the following (electronic or hardcopy format): Identification of generating ~~units~~unit(s) minimum temperature ~~per~~under Requirement R1 Part ~~3.5~~1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, ~~cold weather preparedness plan, and CAP~~and Corrective Action Plan(s).

R3. Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[2] shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or
- Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.

M3. Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R3, or it has developed a Corrective Action Plan for the identified issues. Acceptable evidence may include, but is not limited to, the following (electronic or hardcopy format): Identification of generating unit(s) minimum temperature per Part 1.2.2 which is equal to or less than the unit's Extreme Cold Weather Temperature, documentation of freeze protection measures, and Corrective Action Plan(s).

R4. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

4.1. The lowest calculated Extreme Cold Weather Temperature for ~~their~~each unit~~(s) including the calculation date and source of temperature~~, as determined in Requirement R1;[3]

4.2. The generating unit cold weather data~~; ~~, as determined in Requirement R1.2;

4.3. Documentation identifying ~~the~~ Generator Cold Weather Critical Components;

4.4. Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which ~~may include~~includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and

4.5. Annual inspection and maintenance of generating unit(s) freeze protection measures~~; and~~.

~~**3.1** Generating unit(s) cold weather data, to include:~~

~~**3.1.1** Generating unit(s) operating limitations in cold weather to include:~~

M4. ~~Capability and availability;~~

~~Fuel supply and inventory concerns;~~

~~Fuel switching capabilities; and~~

~~Environmental constraints.~~

~~Generating unit(s) minimum:~~

- ~~Design temperature;~~
- ~~Historical operating temperature; or~~
- ~~Current cold weather performance temperature determined by an engineering analysis.~~

Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement ~~R3.~~R4. Examples of documentation to demonstrate a cold weather preparedness plan may include existing operating procedures, plans, checklists, or processes. Examples of documentation to demonstrate inspections and maintenance have been completed may include, but are not limited to, completed work order(s) from the Generator Owner's work management system and/or freeze protection checklists identifying the measures inspected and maintained.

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[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

~~**R3.** Once every five calendar years, each Generator Owner shall for each generating unit: *[Violation Risk Factor: Low] [Time Horizon: Operations Planning, Real-Time Operations]*~~

~~**4.1** Calculate the Extreme Cold Weather Temperature, and update the cold weather preparedness plan if this temperature is now lower than the previous lowest calculation;~~

~~**4.2** Review its documented generating unit(s) minimum temperature contained within its cold weather preparedness plan(s), pursuant to Part 3.5.2; and~~

~~**4.3** Review whether its generating units have the freeze protection measures required to operate at the Extreme Cold Weather Temperature pursuant to R1 or R2 as applicable, and if not develop a CAP for the identified issues, including identification of any needed modifications to the cold weather preparedness plan required under Requirement R3.~~

~~**M2.** Each Generator Owner will have dated, documented evidence that it reviewed temperature data and updated its cold weather preparedness plan(s) in accordance with Requirement R4.~~

R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement ~~R3~~R4. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

M5. Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner's cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.

R6. Each Generator Owner ~~that owns a~~ shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall ~~develop a CAP,~~be developed within 150 days or by July 1, whichever is earlier,

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

~~that contains~~and contain at a minimum: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;

6.2. A review of applicability to similar equipment at ~~other~~ generating units owned by the Generator Owner; and

6.3. An identification of ~~any temporary~~ operating limitations or impacts to the cold weather preparedness plan~~,~~ that would apply until execution of the corrective action(s) identified in the ~~CAP~~Corrective Action Plan.

M6. Each Generator Owner will have documented evidence that it developed a ~~CAP~~Corrective Action Plan following a Cold Weather Reliability Event at an applicable unit in accordance with Requirement R6. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): ~~CAP~~Corrective Action Plan(s) and updated cold weather preparedness plan(s) where indicated as needed by the ~~CAP~~Corrective Action Plan.

R7. Each Generator Owner~~-~~, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. Include a timetable for implementing the selected corrective action(s) that shall:

7.1.1. List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;

7.1.2. List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and

7.1.3. List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;

7.2. Implement ~~each CAP developed pursuant to Requirements R2, R4, or R6, or explain~~the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;

7.3. Update the Corrective Action Plan action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and

7.4. Document in a declaration~~ why corrective actions are not being implemented due to any technical, commercial, or operational constraints as defined by~~, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.

~~**7.2** Update each CAP if actions or timetables change, until completed.~~

M7. Each Generator Owner shall have dated evidence that demonstrates it implemented each ~~CAP~~Corrective Action Plan, including updating actions or timetables, or has explained in a declaration why corrective actions are not being implemented in accordance with Requirement ~~R7~~R8. Acceptable evidence may include, but is not limited to, the following dated documentation (electronic or hardcopy format): records that document the implementation of each ~~CAP~~Corrective Action Plan and the completion of actions for each ~~CAP~~Corrective Action Plan including revision history of each ~~CAP~~Corrective Action Plan and, if applicable, justification to support any changes to corrective action(s) identified in the Corrective Action Plan or timetables exceeding the timelines in Requirement R7 Part 7.1. For each Corrective Action Plan applying to multiple generating units, the timetable shall reflect implementation at each unit addressed in the Corrective Action Plan. Evidence may also include work management program records, work orders, and maintenance records. Any declaration shall contain dated documentation to support constraints identified by the Generator Owner.

R8. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1. Review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and

8.2. Update the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable.

M8. Each Generator Owner shall have dated evidence that demonstrates it performed the review and updated operating limitations as needed. Acceptable evidence may include, but is not limited to the following dated documentation (electronic or hardcopy format): records that document the performance of the review and update to the operating limitations, as needed.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall ~~keep~~retain data or evidence to ~~show compliance for three years~~support its current Extreme Cold Weather Temperature calculation and generating unit cold weather data, plus each calculation or revision since the last audit, for Requirement R1~~, R3, and R5~~ and Measure M1~~, M3, and M5~~.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R2 or R3 is complete, whichever timeframe is greater, for ~~Requirement~~Requirements R2 and ~~Measure~~R3 and Measures M2 and M3.
- The Generator Owner shall retain the current cold weather preparedness plan(s), as evidence of review or revision history, plus each version issued since the last audit and evidence of compliance since the last audit for Requirement R4 and Measure M4. ~~The Generator Owner shall retain any Corrective Action Plans under Requirement R4 Part 4.3 for three years or until the Corrective Action Plan is complete, whichever timeframe is greater.~~
- The Generator Owner or Generator Operator shall keep data or evidence to show compliance for three years for Requirement R5 and Measure M5.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under Requirement R6 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.

- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan is complete, whichever time frame is greater, for Requirement R7 and Measure M7.
- The Generator Owner shall maintain data or evidence to support its current Generator Cold Weather Constraint declaration, plus each revision since the last audit, for Requirement R8 and Measure M8.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	**Moderate VSL**	**High VSL**	**Severe VSL**
R1.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 20% of its applicable units.
~~R1~~R2.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for 5% or less of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability~~Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement ~~R1~~R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 5%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 10%, but	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R1~~R2 for more than 20% of its applicable units. OR The Generator Owner did not ~~explain in~~develop a ~~declaration any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures~~Corrective Action Plan for more than 20% of its applicable units.

		less than or equal to 10% of its applicable units.	less than or equal to 20% of its applicable units.	
~~R2.~~R3.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement ~~R2~~R3 for more than 20% of its applicable units. OR The Generator Owner did not develop a ~~CAP~~Corrective Action Plan as required by Requirement ~~R2~~R3 for more than 20% of its applicable units.
~~R3~~R4.	The Generator Owner implemented a cold weather preparedness plan(s~~),~~) but failed to maintain it.	The Generator Owner's cold weather preparedness plan failed to include one of the applicable Parts within Requirement ~~R3~~R4.	The Generator Owner had and maintained a cold weather preparedness plan(s~~),~~) but failed to implement it. OR The Generator Owner's cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement ~~R3~~R4.	The Generator Owner does not have a cold weather preparedness plan(s). OR The Generator Owner's cold weather preparedness plan failed to include three or more of the applicable requirement parts within Requirement ~~R3~~R4.
~~R4.~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner completed the actions required in Requirement R4,~~	~~The Generator Owner failed to complete one of the applicable requirement parts in~~	~~The Generator Owner failed to complete two or more of the applicable requirement parts~~

	~~but was late by 30 calendar days or less.~~	~~but was late by greater than 30 calendar days, but less than or equal to 60 calendar days.~~	~~Requirement R4 Parts 4.1 through 4.3;~~ ~~OR~~ ~~The Generator Owner completed the actions required in Requirement R4, but was late by greater than 60 calendar days.~~	~~in Requirement R4 Parts 4.1 through 4.3.~~
R5.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel.	The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of: • four or more applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner developed a ~~CAP~~Corrective Action Plan, but not within 150 days or by July 1 as required in Requirement R6.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with one of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with two of the elements in Requirement R6, Parts 6.1 through 6.3.	The Generator Owner's ~~CAP~~Corrective Action Plan failed to comply with three of the elements in Requirement R6, Parts 6.1 through 6.3. OR The Generator Owner did not develop a ~~CAP~~Corrective

				Action Plan, as required by Requirement R6.
R7.	The Generator Owner implemented a ~~CAP or explained in a declaration why corrective actions are not being implemented~~Corrective Action Plan, but failed to update the ~~CAP~~Corrective Action Plan when ~~actions or timetables~~corrective action(s) changed~~,~~ in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a ~~CAP~~Corrective Action Plan or ~~explain~~failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.
R8.	N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	~~TBD~~October 1, 2024	Drafted by Project 2021-07	New
2	TBD	Revisions drafted by Project 2021-07 due to FERC Order and inquiry Recommendations.	Revisions

Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2
Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report which called for development of new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012-1 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-1.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements, and making other enhancements directed by FERC in the Phase 1 Approval Order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2/EOP-012-1, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with the Phase 1 Approval Order, and proposed Requirement R8 requires Generator Owners to review declarations at least every five years, or as needed, when a change of status occurs and ensures operating limitations caused by the constraints are clearly identified. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter "Phase 1 Approval Order"), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1 but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

Implementation Plan

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Phase 2
Reliability Standard EOP-012-2

Applicable Standard(s)

- EOP-012-2 Extreme Cold Weather Preparedness and Operations

Requested Retirement(s)

- EOP-012-1

Prerequisite Standard(s)

- None

Proposed Definition(s)

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint(s)
- Extreme Cold Weather Temperature (unchanged from EOP-012-1)

Applicable Entities

- Generator Owner
- Generator Operator

Background

The purpose of Project 2021-07 is to develop Reliability Standards to enhance the reliability of the Bulk Electric System (BES) through improved operations, preparedness, and coordination during extreme cold weather, as recommended by the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 extreme cold weather event (the "Report").[1]

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[1] *See* FERC, NERC and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (Nov. 2021) (referred to as "the Report").

Project 2021-07

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Report which called for development of new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. This implementation plan addresses Reliability Standard EOP-012-2, which revises the EOP-012-1 standard to address FERC directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-1.[2]

Proposed Reliability Standard EOP-012-2 revises the EOP-012-1 standard by clarifying the applicability of the standard and its individual requirements, and making other enhancements directed by FERC in the Phase 1 Approval Order. Proposed EOP-012-2 Requirement R1 is a new requirement that consolidates and clarifies existing requirements for each Generator Owner to calculate the Extreme Cold Weather Temperature for its generating unit location(s) and identify generating unit cold weather data, and to review these calculations and data every five years. Proposed EOP-012-2 Requirement R4 and R5 continue the current requirements, under EOP-011-2/EOP-012-1, that all Generator Owners develop cold weather preparedness plans and that all Generator Owners or Generator Operators (as appropriate) conduct annual training on those plans. Proposed EOP-012-2 clarifies which generating unit(s) are subject to the winter operations capability requirements of the standard (Requirements R2 and R3). Proposed EOP-012-2 Requirement R7 specifies timelines for the completion of Corrective Action Plans, consistent with the Phase 1 Approval Order, and proposed Requirement R8 requires Generator Owners to review declarations at least every five years, or as needed, when a change of status occurs and ensures operating limitations caused by the constraints are clearly identified. New and revised *Glossary* terms provide clarity to the requirements of the standard.

For additional information on the Phase 1 Approval Order directives addressed in proposed Reliability Standard EOP-012-2, see the Phase 2 Mapping Document on the Project 2021-07 project page.

General Considerations

This implementation plan reflects consideration that entities will need time to develop, implement, and maintain cold weather plans and freeze protection measures, and considers the FERC directives regarding the effective date of directed changes and abbreviated implementation periods for generator winterization measures in the Phase 1 Approval Order.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standards are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular

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[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (Feb. 16, 2023) (hereinafter "Phase 1 Approval Order"), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (Apr. 20, 2023). In this order, FERC approved the effective date for EOP-012-1 but deferred approving the requested retirement of EOP-011-2 until presented with a revised EOP-012 standard addressing its concerns regarding standard applicability.

section of a proposed Reliability Standard (i.e., an entire Requirement or a portion thereof), the additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Standard EOP-012-2 and Definitions

Where approval by an applicable governmental authority is required, the standard and associated definitions shall become effective on the later of: (1) October 1, 2024; or (2) the first day of the first calendar quarter that is three (3) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is three (3) months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for EOP-012-2 - Requirement R3

Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.

Retirement Date

Standard EOP-012-1

Reliability Standard EOP-012-1 shall be retired immediately prior to the effective date of Reliability Standard EOP-012-2 in the particular jurisdiction in which the revised standard is becoming effective.

Initial Performance of Periodic Requirements

Entities shall be compliant with Requirement R1 by the effective date. Entities shall perform their first periodic review under Requirement R1 by no more than 60 months after the effective date of EOP-012-2.

Mapping Document

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Summary

This mapping document maps the recommendations from The February 2021 Cold Weather Outages in Texas and the South Central United States report (The Report) to proposed Reliability Standard EOP-012-2. This mapping document also maps how the drafting team considered FERC's directives for further revisions to Reliability Standard EOP-012-1 in its February 16, 2023 approval order[1] in proposed EOP-012-2.

Recommendation 1a

To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start.

Standard: EOP-012-2

Requirement in Approved Standard	Revisions in Standard or Other Action	Description and Change Justification
Generator Cold Weather Critical Component - Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

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[1] *N. Am. Elec. Reliability Corp.*., 182 FERC ¶ 61,094 (2023) (approving Reliability Standards EOP-011-3 and EOP-012-1 and directing further revisions to EOP-012-1 and the implementation plan) ("February 2023 Order").

	associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.2** Documentation identifying the Generator Cold Weather Critical Components	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.3** Documentation identifying Generator Cold Weather Critical Components;	The SDT maintained the language in approved EOP-012-1 R3 and moved it to R4 for Generator Owners to identify Generator Cold Weather Critical Components to meet recommendation 1a.

Recommendation 1b

To require Generator Owners to identify and implement freeze protection measures for the cold-weather-critical components and systems. The Generator Owner should consider previous freeze-related issues experienced by the generating unit, and any corrective or mitigation actions taken in response. At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
Generator Cold Weather Critical Component Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

	parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.3** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generator Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.
This requirement does not exist in the currently approved standard.	**R6.** Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32	To meet recommendation 1b "the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary", the drafting team has

	degrees Fahrenheit (zero degrees Celsius),[2] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: **6.3.** An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.	proposed R6.3. through the CAP process for Generator Owners to update the list of Generator Cold Weather Critical Components in the cold weather preparedness plan in R4.
R.1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning] **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.1** The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]	The standard drafting team reorganized the standard to provide clarity to the applicability and requirements consistent with the FERC directives. Requirement R1 sets the stage for subsequent requirements. Requirement R1 specifies that each Generator Owner shall calculate its Extreme Cold Weather Temperature at

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

date and source of temperature data; and **1.2.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within six (6) months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and	**4.2** The generating unit cold weather data, as determined in Requirement R1.2; **4.3** Documentation identifying Generator Cold Weather Critical Components; **4.4** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and **4.5** Annual inspection and maintenance of generating unit(s) freeze protection measures.	least once every five years, and if the recalculated temperature is now lower than what it was previously, update its plan and freeze protection measures to provide capability to operate at the new, lower temperature. This requirement addresses the last sentence of Recommendation 1b: "At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary."

1.2.1.4. Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.		

Recommendation 1c

To revise EOP-011-2, R7.3.2, to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
3.5.2 Generating unit(s) minimum: • Design temperature; • Historical operating temperature; or • Current cold weather performance temperature determined by an engineering analysis.	**1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	The SDT has proposed modifications to the existing language in EOP-012-1 R3.5.2 and moved it to R1.2.2 to account for the effects of precipitation and the cooling effects of wind when providing the generating unit minimum temperature.
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum:	**R4**. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generator Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.

3.3 Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	Weather Critical Components, which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	

FERC February 2023 Order Directives – Applicability (Paragraphs 58-60)

The Commission directed NERC to revise the applicability of the standard to ensure that it captures all BES generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions, consistent with the drafting team's stated intent. The Commission also directed NERC to revise the EOP-012-1 standard to ensure that all BES generating units are required to maintain and train on cold weather preparedness plans and maintain information regarding cold weather operating parameters consistent with EOP-011-2 Requirements R7 and R8.

The Commission deferred its decision on whether to approve the proposed effective date of EOP-011-3 until NERC submits the revised applicability section of EOP-012 to ensure all entities currently covered by the EOP-011-2 standard would remain covered under the revised EOP-012 standard.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 58: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to ensure that it captures all bulk electric system generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions...NERC should ensure the modified applicability is implemented as of the effective date of Reliability Standard EOP-012-1."	**4.2. Facilities:** **4.2.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources: **4.2.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.2.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3.	The SDT determined that EOP-012-1 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a Bulk Electric System (BES) resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC

		Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Requirements for generator cold weather freeze protection measures would continue to apply only to generation that is relied upon during freezing conditions, consistent with EOP-012-1 and the recommendations of the Joint Inquiry Report. However, those limitations are identified in those specific requirements, rather than in the applicability sections of the standard.
PP 59-60: "Given the lack of clarity in the proposed applicability criteria for EOP-012-1, we are concerned that the standard could apply to significantly fewer generators than the existing Reliability Standard EOP-011-2 Requirements R7 and R8…. Furthermore, we are concerned that the proposed applicability criteria for EOP-012-1 and retirement of EOP-011-2 Requirements R7 and R8 will eliminate valuable information on cold weather preparedness of generating units that typically do not operate during the winter….	**R1.** At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and **1.1.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s)	The SDT proposes a new R1 which does not have any exclusions, meaning all generating units subject to this standard under the facilities section will be subject to this requirement. For more information on applicable entities please see the write-up above.

The loss of this information concerns us as the proposed applicability of EOP-012-1 recognizes that units that do not typically run during the winter may be called upon during emergencies. We therefore direct NERC to modify EOP-012-1 to ensure that this information remains available.”	under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and **1.2.1.4.** Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the	

		concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	

FERC Order Directives - Generator Constraints to Implementing Winterization Requirements (Paragraph 66)

The Commission directed NERC to develop modifications to EOP-012-1 Requirements R1 and R7 to address concerns related to generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures. Specifically, the Commission directed NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 66: "[W]e direct NERC…to develop and submit modifications to Reliability Standard EOP-012-1 Requirements R1 and R7 to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures and to ensure that the constraint declarations may not be used to opt-out of compliance with the Standard or obligations set forth in a corrective action plan. Specifically, we direct NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7."	**Generator Cold Weather Constraint** – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions. Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made: • Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter	The SDT proposed a new defined term, Generator Cold Weather Constraint. In developing this term, the team considered the components of the broadly used term "good utility practice" for what qualifies as a permissible constraint. Constraints generally consist of situations where there is no technological solution or the available technology is unproven, or where the solution cannot be implemented at a reasonable cost consistent with good business practices, reliability, or safety. While reliability and safety considerations are generally well understood, the team determined that additional clarification was needed in the definition regarding the reasonableness of costs. The proposed

	climate conditions to provide reasonable assurance of efficacy; • Could not have been expected to accomplish the desired result; or • Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life. *AND* **R8**. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: **8.1.** Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and **8.2.** Update the operating limitations associated with capability and availability	language is intended to conform the discussion of cost reasonableness with the drafting team's original intent when drafting the EOP-012 standard; namely, that the standard be rigorous in support of cold weather reliability, but not be so overly burdensome that generators would remove their units from service during the winter months rather than comply, which in turn could make cold weather supply challenges worse. In developing this language, the drafting team considered comments on multiple drafts and believes the current approach represents a balanced consideration of the various factors raised while maintaining a high bar for cold weather reliability. The FERC order directed NERC to "identify the appropriate entity that would receive the generator owner's constraint declarations." The SDT believes that the intent of this language is for identified operating limitations to be provided to necessary entities who have a wide area view (i.e., Balancing Authorities or Reliability Coordinators) and are responsible for grid planning and reliability. The drafting team has

	under Requirement R1 Part R1.2 if applicable.	written Requirement R8 to require Generator Owners to update the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003 and IRO-010. The standard drafting team understands that issues related to compliance with the standard and entity use of the constraint provisions will be addressed as part of the work plan submitted in accordance with PP94-96.

FERC Order Directives - Generator Capability Requirements (Paragraphs 89-90)

The Commission directed NERC to modify EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the standard. The Commission also directed NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 89: "[W]e direct NERC to modify the Standard to clarify Reliability Standard EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard."	**4.3. Facilities:** **4.3.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources: **4.3.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.3.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3. *AND* **R2.** Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or	The SDT proposes a new facilities section with includes all BES generating units in the standard. Additionally, Requirement R2 has been modified to cover the example in the order "(e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard." Requirement R2 provides that intermittent energy resources should have the capability to provide as much generation as operationally possible if that is less than 12 hours.

	below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] shall: • Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or • Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve	

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	(12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.	
P 90: "We also find that the one-hour continuous operations requirement in Reliability Standard EOP-012-1 Requirement R2 is too short of a period to adequately meet the purpose of the Standard to ensure generating units "mitigate the reliability impacts of extreme cold weather[.]" Thus, we direct NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.	**R3.** Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] shall: • Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or • Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to	The SDT did not intend for the requirement to be interpreted as a 1 – hour reliability requirement. As such, the 1-hour statement has been removed from the standard to make sure there is no misunderstanding.

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	operate at the unit(s)' Extreme Cold Weather Temperature.	

FERC Order Directives - Corrective Action Plan Deadlines (Paragraph 79)

For any requirement requiring the development of a corrective action plan to address capability or cold weather performance issues, the Commission directed NERC to include a deadline or maximum period for the completion of corrective action plan measures.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 79: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to address concerns related to the lack of an implementation timeframe for corrective action plans. Specifically, we direct NERC to include in the Standard a deadline or maximum period for the implementation completion of corrective action plans under the Standard."	**R7.** Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: **7.1.** Include a timetable for implementing the selected corrective action(s) that shall: **7.1.1.** List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan; **7.1.2.** List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and	The SDT proposed new Requirement R7 which includes timetables for CAP completion. These timetables are consistent with those provided for corrective actions in the TPL-007 standard.

FERC Order Directives - Implementation Plan Considerations (Paragraphs 37, 58, 88)

The Commission directed NERC to require a shorter implementation period than five years post approval, as well as a staggered implementation for unit(s) across a generator owner's fleet (e.g., 30% compliant by Year X, 60% compliant by Year Y, 100% compliant by Year Z). The Commission also directed NERC to develop standards modifications addressing standard applicability and other matters without delaying the effective date of EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 88: "[W]e direct NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet… Although we are giving NERC the discretion to determine what the effective date should be shortened to, we also emphasize that industry has been aware of and alerted to the need to prepare their generating units for cold weather since at least 2011. NERC should consider the amount of time that industry has already had to implement freeze protection measures when determining the appropriate shorter implementation period."	**Compliance Date for EOP-012-2 - Requirement R3** Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.	The Commission allows NERC to propose an equally effective and efficient solution to a solution offered by the Commission to address a reliability matter. The Commission expressed concern regarding the length of the original EOP-012-1 implementation plan and identified to reduce reliability risks more quickly – a shortened plan with a staggered implementation period. The standard drafting team has determined an alternative proposal, to shorten the implementation period for winterization measures to 12 months across an entire fleet, addresses the Commission's concerns in an equally effective and efficient manner. The implementation of such measures would be subject to deadlines for Corrective

		Action Plan measures in EOP-012-2 Requirement R7. This proposal provides certainty as to the timeframes required for action, reduces reliability risks more quickly than the EOP-012-1 plan it replaces, and avoids some of the administrative burdens and uncertainties with a percent compliant implementation plan, particularly for entities with nationwide fleets or multiple NCR/MRRE registrations. Further, this approach provides entities with flexibility to implement corrective actions across their fleets in an efficient manner, such as where similar units across a fleet require similar changes. The drafting team expects that, as a practical matter, there will be some natural staggering when implementing corrective measures. The overall shortened timeframe helps ensure that the actions are completed in a more expeditious manner and more units are reliable year over year (or, when constraints are declared, the extent is fully understood) than under the original EOP-012-1 standard. Thus, the proposed approach provides an equally effective and efficient alternative to addressing the

		reliability consideration underlying the Commission's directive.
P 37: "[W]e also direct NERC to develop modifications to address the concerns regarding Requirements R1 and R7, as well as other concerns we have identified as to other aspects of Reliability Standard EOP-012-1, without delaying the effective date of Reliability Standard EOP-012-1." P 58: "…NERC should ensure the modified applicability [of the EOP-012 standard] is implemented as of the effective date of Reliability Standard EOP-012-1."		Under the proposed implementation plan, Reliability Standard EOP-012-2 would become effective on the later of: (1) October 1, 2024, which is the date EOP-012-1 is scheduled to become effective; or (2) the first day of the first calendar quarter that is three months following Commission approval. Thus, the effective date of a revised EOP-012 standard addressing the Commission's concerns would not be delayed past the effective date of EOP-012-1, so long as EOP-012-2 is approved before July 1, 2024. Any delay after that time would be modest and in the interest of providing sufficiently reasonable notice to entities of their revised obligations.

Violation Risk Factor and Violation Severity Level Justifications

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

This document provides the standard drafting team's (SDT's) justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination. Each requirement is assigned a VRF and a VSL. These elements support the determination of an initial value range for the Base Penalty Amount regarding violations of requirements in FERC-approved Reliability Standards, as defined in the Electric Reliability Organization's (ERO) Sanctions Guidelines. The SDT applied the following NERC criteria and FERC Guidelines when developing the VRFs and VSLs for the requirements.

NERC Criteria for Violation Risk Factors

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to Bulk Electric System instability, separation, or a cascading sequence of failures, or could place the Bulk Electric System at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

A requirement that, if violated, could directly affect the electrical state or the capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System. However, violation of a medium risk requirement is unlikely to lead to Bulk Electric System instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to Bulk Electric System instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the Bulk Electric System, or the ability to effectively monitor, control, or restore the Bulk Electric System.

FERC Guidelines for Violation Risk Factors

Guideline (1) – Consistency with the Conclusions of the Final Blackout Report

FERC seeks to ensure that VRFs assigned to Requirements of Reliability Standards in these identified areas appropriately reflect their historical critical impact on the reliability of the Bulk-Power System. In the VSL Order, FERC listed critical areas (from the Final Blackout Report) where violations could severely affect the reliability of the Bulk-Power System:

- Emergency operations
- Vegetation management
- Operator personnel training
- Protection systems and their coordination
- Operating tools and backup facilities
- Reactive power and voltage control
- System modeling and data exchange
- Communication protocol and facilities
- Requirements to determine equipment ratings
- Synchronized data recorders
- Clearer criteria for operationally critical facilities
- Appropriate use of transmission loading relief.

Guideline (2) – Consistency within a Reliability Standard

FERC expects a rational connection between the sub-Requirement VRF assignments and the main Requirement VRF assignment.

Guideline (3) – Consistency among Reliability Standards

FERC expects the assignment of VRFs corresponding to Requirements that address similar reliability goals in different Reliability Standards would be treated comparably.

Guideline (4) – Consistency with NERC’s Definition of the Violation Risk Factor Level

Guideline (4) was developed to evaluate whether the assignment of a particular VRF level conforms to NERC’s definition of that risk level.

Guideline (5) – Treatment of Requirements that Co-mingle More Than One Obligation

Where a single Requirement co-mingles a higher risk reliability objective and a lesser risk reliability objective, the VRF assignment for such Requirements must not be watered down to reflect the lower risk level associated with the less important objective of the Reliability Standard.

NERC Criteria for Violation Severity Levels

VSLs define the degree to which compliance with a requirement was not achieved. Each requirement must have at least one VSL. While it is preferable to have four VSLs for each requirement, some requirements do not have multiple "degrees" of noncompliant performance and may have only one, two, or three VSLs.

VSLs should be based on NERC's overarching criteria shown in the table below:

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

FERC Order of Violation Severity Levels

The FERC VSL guidelines are presented below, followed by an analysis of whether the VSLs proposed for each requirement in the standard meet the FERC Guidelines for assessing VSLs:

Guideline (1) – Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance

Compare the VSLs to any prior levels of non-compliance and avoid significant changes that may encourage a lower level of compliance than was required when levels of non-compliance were used.

Guideline (2) – Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties

A violation of a "binary" type requirement must be a "Severe" VSL.
Do not use ambiguous terms such as "minor" and "significant" to describe noncompliant performance.

Guideline (3) – Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement

VSLs should not expand on what is required in the requirement.

Guideline (4) – Violation Severity Level Assignment Should Be Based on a Single Violation, Not on a Cumulative Number of Violations

Unless otherwise stated in the requirement, each instance of non-compliance with a requirement is a separate violation. Section 4 of the Sanctions Guidelines states that assessing penalties on a per violation per day basis is the "default" for penalty calculations.

EOP-012-2

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
NERC VRF Discussion	A VRF of Lower is appropriate due to the fact that calculating the Extreme Cold Weather Temperature and identifying generating unit cold weather data is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Lower VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Lower VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC	This VRF is in line with the definition of a Lower VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.

VRF Justifications for EOP-012-2, Requirement R1	
Proposed VRF	**Lower**
Definitions of VRFs	
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R1			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for 5% or less of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not calculate the Extreme Cold Weather Temperature and identify generating unit(s) cold weather data in accordance with Requirement R1 for more 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R1	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for EOP-012-2, Requirement R1	
Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R2

The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1).

VSL Justification for EOP-012-2, Requirement R2

The VSL had minor changes from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R1) due to changes in the standard language and reorganization of requirements.

VSLs for EOP-012-2, Requirement R2			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan to implement appropriate freeze protection measures for 5% or less of its applicable units.	The Generator Owner did not have freeze protection measure(s) for its applicable unit(s) meeting the criteria in Requirement R2 for more than 5%, but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 5%, but less than or equal to 10% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 10%, but less than or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 10%, but less than or equal to 20% of its applicable units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R2 for more than 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan for more than 20% of its applicable units.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of medium is appropriate due to the fact generating units that are not capable of operating at its Extreme Cold Weather Temperature could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.

VRF Justifications for EOP-012-2, Requirement R3	
Proposed VRF	**Medium**
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSL Justification for EOP-012-2, Requirement R3

The VSL had minor changes due to changes in the standard language from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R2).

VSLs for EOP-012-2, Requirement R3			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner did not have freeze protection measure(s) meeting the criteria in	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 5%,	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 10%, but less than	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R3 for more than 20% of its applicable units.

Requirement R3 for 5% or less of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for 5% or less of its applicable units.	but less than or equal to 10% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 5%, but less than or equal to 10% of its applicable units.	or equal to 20% of its applicable units. OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 10%, but less than or equal to 20% of its applicable units.	OR The Generator Owner did not develop a Corrective Action Plan as required by Requirement R3 for more than 20% of its applicable units.

VSL Justifications for EOP-012-2, Requirement R3	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSLs do not have the unintended consequence of lowering the level of compliance.
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent

VSL Justifications for EOP-012-2, Requirement R3	
Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justification for EOP-012-2, Requirement R4
The VRF did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VSL Justification for EOP-012-2, Requirement R2
The VSL did not change from the corresponding requirement in the previous EOP-012-1 Reliability Standard (Requirement R3).

VRF Justification for EOP-012-2, Requirement R5
The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R5
The VSL did not change from the previous EOP-012-1 Reliability Standard.

VRF Justification for EOP-012-2, Requirement R6
The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R6
VSL had minor changes due to minor revisions in the standard language.

VRF Justification for EOP-012-2, Requirement R7
The VRF did not change from the previous EOP-012-1 Reliability Standard.

VSL Justification for EOP-012-2, Requirement R7
VSL had changes due to revisions in the standard language.

VSLs for EOP-012-2, Requirement R7			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner implemented a Corrective Action Plan, but failed to update the Corrective Action Plan when corrective action(s) changed in accordance with Requirement R7.	The Generator Owner implemented a Corrective Action Plan, but failed to include a timetable for implementing the selected corrective actions meeting the criteria of Requirement R7 Part 7.1.	The Generator Owner implemented a Corrective Action Plan, but failed to implement the Corrective Action Plan within the specified timetable or failed to update the Corrective Action Plan, with justification, when timetable(s) exceeded the timelines in Requirement R7 Part 7.1.	The Generator Owner failed to implement a Corrective Action Plan or failed to document in a declaration why corrective actions are not being implemented in accordance with Requirement R7.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
NERC VRF Discussion	A VRF of Medium is appropriate due to the fact that not updating Generator Cold Weather Constraint declarations and updating operating limitations associated with capability and availability could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. Therefore, it is in line with the definition of a Medium VRF.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a	The assignment of Medium VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.

VRF Justifications for EOP-012-2, Requirement R8	
Proposed VRF	**Medium**
Reliability Standard	
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Medium VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not mingle a higher risk reliability objective and a lesser risk reliability objective. Therefore, the VRF reflects the risk of the whole requirement.

VSLs for EOP-012-2, Requirement R8			
Lower	**Moderate**	**High**	**Severe**
N/A	N/A	The Generator Owner failed to comply with one of the elements in Requirement R8, Parts 8.1 through 8.2.	The Generator Owner failed to comply with all of the elements in Requirement R8, Parts 8.1 through 8.2.

VSL Justifications for EOP-012-2, Requirement R8	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.

VSL Justifications for EOP-012-2, Requirement R8	
Consequence of Lowering the Current Level of Compliance	
FERC VSL G2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties <u>Guideline 2a</u>: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent <u>Guideline 2b</u>: Violation Severity Level Assignments that Contain Ambiguous Language	The proposed VSLs are not binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

February 2024

RELIABILITY | RESILIENCE | SECURITY

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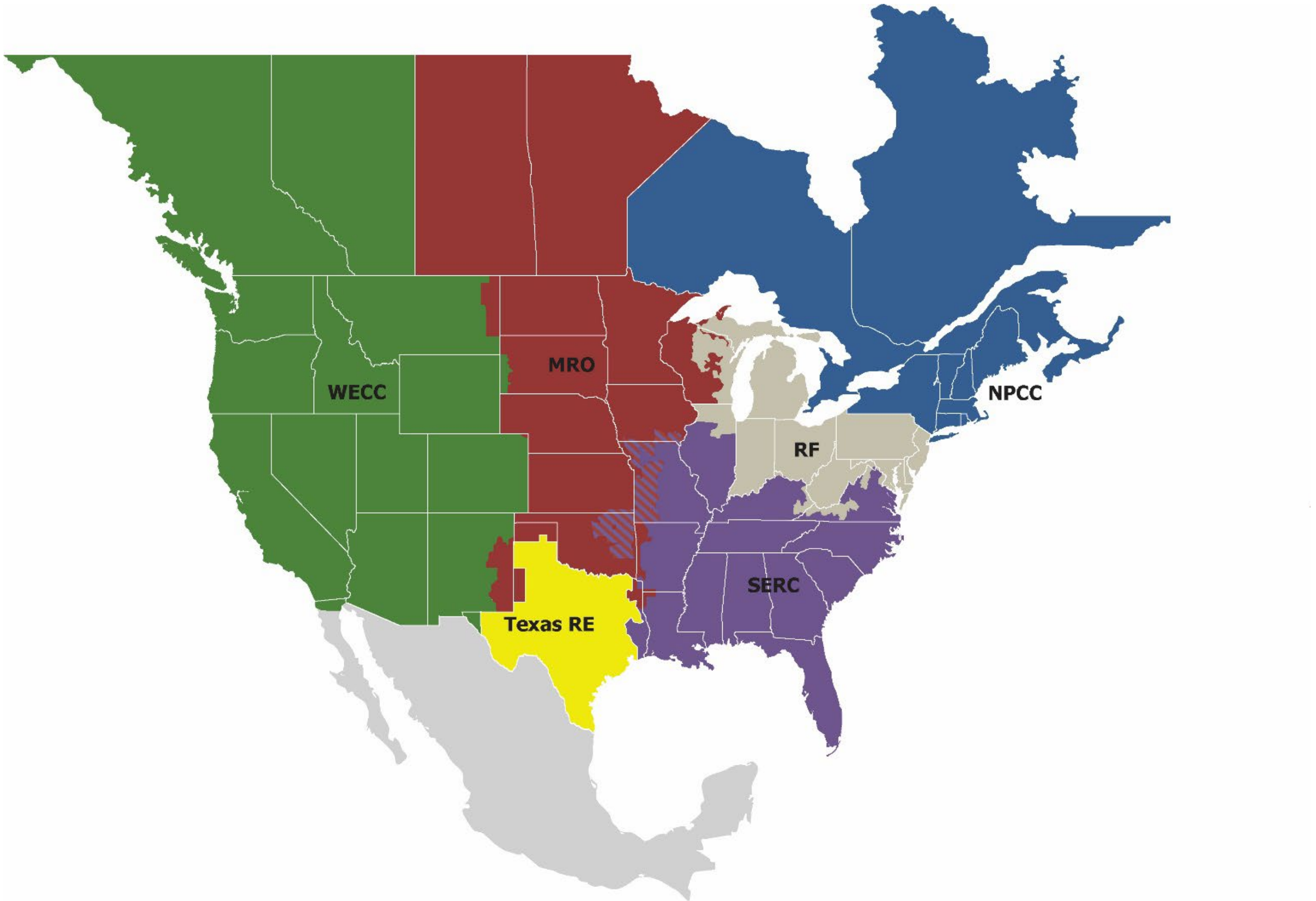
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of NERC and the six Regional Entities, is a highly reliable, resilient, and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entities as shown on the map and in the corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources could include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. GOs may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature, but upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT, such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility. Please reference the Calculating Extreme Cold Weather Temperature document drafted by the SDT for more information on how to calculate the ECWT.[6]

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

[6] Report (nerc.com)

Generator Cold Weather Critical Component

Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing and are critical to the operation of generating units. GOs should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components. The SDT also felt it is appropriate to specifically exclude components that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner would not constitute a freezing condition in the context of this Standard, and therefore, these lines would not be considered a Generator Cold Weather Critical Component.

The SDT's intent with the use of the phrase "permanent building" is to refer to a structure that is in place year round, shall accommodate personnel entry, and has a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit for the purpose of protecting components from freezing (e.g. heated container that protects inverter-based resources or battery energy systems).

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement, but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

<u>Key Recommendation 1d:</u> To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective

action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a Corrective Action Plan (CAP) for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, or freezing rain) on equipment. The SDT felt that it was important to clearly call out freezing precipitation as these events were included in the outages and derates that identified as freezing in the Joint Inquiry Report. Furthermore, Key Recommendation 1c of the report requires GOs to account for the effect of precipitation. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. Also excluded are proactive operational actions to limit the potential of forced outages or derates. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs). From the GADS data reporting instructions, the startup period for each unit is determined by the operating company. It is unique for each unit and depends on the condition of the unit at the time of startup (cold, warm, or hot). A typical unit startup occurs in three phases: warm up, synchronization, and ramp up. NERC defines a startup period to begin with the command to start and end when the unit is synchronized. A Startup Failure begins when a problem preventing the unit from synchronizing occurs. The Startup failure ends when the unit is synchronized, another Startup Failure occurs, or the unit enters another permissible state.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types

- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint

Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- *Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;*
- *Could not have been expected to accomplish the desired result; or*
- *Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.*

The SDT reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. The SDT relied upon the industry's long practice of using "good utility practice" as a basis for implementing new practices, methods, or technologies and as such developed a definition that largely built upon this language and approach. The SDT also ensured that constraint language would be fully captured within the standard itself and was customized to the freeze protection measures that will be implemented as part of this standard.

The following non-comprehensive list contains examples that may, depending on the circumstances, constitute a Generator Cold Weather Constraint(s):

- Warranties that would be voided by application of a freeze protection measure
- Accelerated retirement of an existing generating unit
- Cancellation of new generating unit(s)
- Reduction in summer capability
- Introduces an increased personnel or safety risk
- Introduces a risk of noncompliance with environmental regulations
- Compromised ability to provide ancillary services
- Technology not utilized by a significant portion of the electric utility industry

Ultimately, it will be the GO’s responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented. A declaration that no further corrective actions will be taken is expected to be used sparingly.

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard. Furthermore, the SDT wants to ensure that the standard language supports the adoption of new freeze protection practices, methods, or technologies while not immediately requiring a new freeze protection practice, method, or technology to be implemented industry-wide when a leading utility pilots a novel approach, as this would be a disincentive to utilities piloting new technologies. The SDT encourages additional studying of freeze protection measures to remove constraints as appropriate over time.

Facilities

4.1. *Facilities:*

- **4.1.1.** *Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:*
  - **4.1.1.1.** *A BES generating resource identified in the BES definition, Inclusion I2 and I4; or*
  - **4.1.1.2.** *A Blackstart Resource, identified in the BES definition, Inclusion I3.*

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

- ***1.1.*** *Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and*
  - ***1.1.1.*** *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.*
- ***1.2.*** *Identify generating unit(s) cold weather data, to include:*
  - ***1.2.1.*** *Generating unit(s) operating limitations in cold weather to include:*
    - ***1.2.1.1.*** *Capability and availability;*
    - ***1.2.1.2.*** *Fuel supply and inventory concerns;*
    - ***1.2.1.3.*** *Start-up issues;*
    - ***1.2.1.4.*** *Fuel switching capabilities; and*
    - ***1.2.1.5.*** *Environmental constraints.*
  - ***1.2.2.*** *Generating unit(s) minimum:*
    - *Design temperature and if available, the concurrent wind speed and precipitation;*
    - *Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or*
    - *Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003-5 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and

precipitation. Consideration of wind and precipitation, along with the minimum temperature, provides a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual future cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[7] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or*
- *Develop a Corrective Action Plan(s) to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report[8] suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, 2027). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

GOs with generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then must implement the CAP according to R7. In addition, it is recognized that Generator Cold Weather Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.4, the option for the GO to make a declaration supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter in

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[7] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[8] sw-task-force-cover-new2.psd (nerc.com)

most regions of the US and Canada and typically include the hours with the coldest experienced temperatures. The SDT is of the opinion that tying the requirement to the 12-hour period would provide a reasonable level of reliability during a cold weather event. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather conditions.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[9] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or*
- *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.*

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the timetable requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables are to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

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[9] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

- ***4.1*** *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*
- ***4.2*** *The generating unit cold weather data, as determined in Part 1.2;*
- ***4.3*** *Documentation identifying Generator Cold Weather Critical Components;*
- ***4.4*** *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*
- ***4.5*** *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2 and is intended to be used and reviewed regularly by the GO. R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012-2, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003-5 and IRO-010-4. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The NERC *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[10], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[10] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

_R5._ *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an "annual" basis. The Joint Inquiry Report explains "Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area."[11] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word "annual" to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The intent of the SDT is that training be provided to operational personnel who are responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. The operational personnel may include employees of the Registered Entity as well as any dedicated on-site full-time contractors or equipment OEM personnel responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. Vendors who perform inspection, maintenance, or installation of freeze protection measures prior to the winter season do not need to receive the training on the cold weather preparedness plan.

The SDT anticipates that training for personnel may include instructions on actions taken to prepare the generating unit(s) for cold weather operations prior to the cold weather season as well as on actions taken when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, application of portable heaters, review of special inspections or rounds implemented during severe weather, fuel switching procedures, and maintenance of freeze protection measures, etc.

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[11] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[12] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

6.1. *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*

6.2. *A review of applicability to similar equipment at generating units owned by the Generator Owner; and*

6.3. *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.*

Key Recommendation 1d: To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads "A list of actions and an associated timetable for implementation to remedy a specific problem." As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

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[12] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit, but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the RTO's.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site's ECWT. By using the site's ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

7.1. *Include a timetable for implementing the selected corrective action(s) that shall:*

7.1.1. *List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;*

7.1.2. *List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;*

7.1.3. *List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;*

7.2. *Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;*

7.3. *Update the Corrective Action Plan action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and*

7.4. *Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. At the same time, the SDT recognizes that the following limitations make the 24 and 48 calendar months maximum timelines reasonable: scoping applicability to similar units, freeze protection engineering and design, project development, annual budgeting process, material supply lead times, outage scheduling, skilled labor availability, and startup/commissioning.

Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future. The SDT added part 7.1.3. for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues. In establishing these timeframes, the SDT considered the FERC directives, and that NERC include a timeframe for completion for CAPs, shorten the implementation plans, and that NERC stagger Implementation Plans to have more generation compliant faster. The SDT considered a staggered timeframe both in the standard and Implementation Plan but determined that more aggressive completion time frames, combined with a shorter implementation plan, would serve the reliability goal to have generating units operating at the ECWT with less administrative burden that could be associated with proving compliance with a staggered implementation plan fleet wide. There is no specific staggering requirement within the 24- or 48-month completing time frames because of industry concern about additional complications of completing work efficiently. There will be some natural staggering due to unit outages and personnel availability as an example.

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. GOs that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

If one or more actions within a CAP fall under a constraint declaration, it is the intent of the SDT that only those affected actions would not be implemented as part of the CAP. The remaining actions should be implemented.

Requirement R8

R8. *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

- **8.1** *Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and*
- **8.2** *Update the operating limitations associated with capability and availability under Requirement R1 Part 1.2 if applicable.*

In the FERC order, the Commission expressed concern that a GO may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT.[1] An additional concern was that the constraint declarations may be used by a functional entity as an opt-out of compliance with requirements set forth in the standards or in a corrective action plan.[2] To mitigate the concern, the Commission directed NERC to work with Commission staff and submit a data collection and assessment plan that contains information related to GO constraint declarations and explanations thereof.[3] The SDT expects that ERO compliance staff will be the entity responsible for reviewing declared constraints and assessing compliance with the constraint definition criteria in accordance with established processes.

The SDT developed R8 to require the GO to perform a review and update any constraint declarations as needed. The SDT believes that constraints will be the exception. When GO's experience a condition such that they need to make a constraint declaration, the SDT believes the limiting factor causing the constraints will not change quickly, and as such a 5-year review is the appropriate time. While the SDT implemented a 5-year maximum time frame to review, it is the SDT's intent that the GO's will be cognizant of their Cold Weather Constraints and will proactively remove these constraints when and where warranted. For instance, if a unit is slated for retirement and this status changes, it is the expectation of the SDT that the GO will review constraints based upon this change in condition and will no longer take this constraint for future CAPs that may require the implementation of freeze protection measures on this unit given that it is no longer slated for retirement.

Updated constraint declarations would also require an update to the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003-5 and IRO-010-4.

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[1] FERC Order, 182 FERC ¶ 61,094 at P 64.

[2] Id. At P 66.

[3] See id at PP 11, 68, 94-95.

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Extreme Cold Weather Preparedness

Technical Rationale and Justification for EOP-012-2

~~January~~February 2024

RELIABILITY | RESILIENCE | SECURITY

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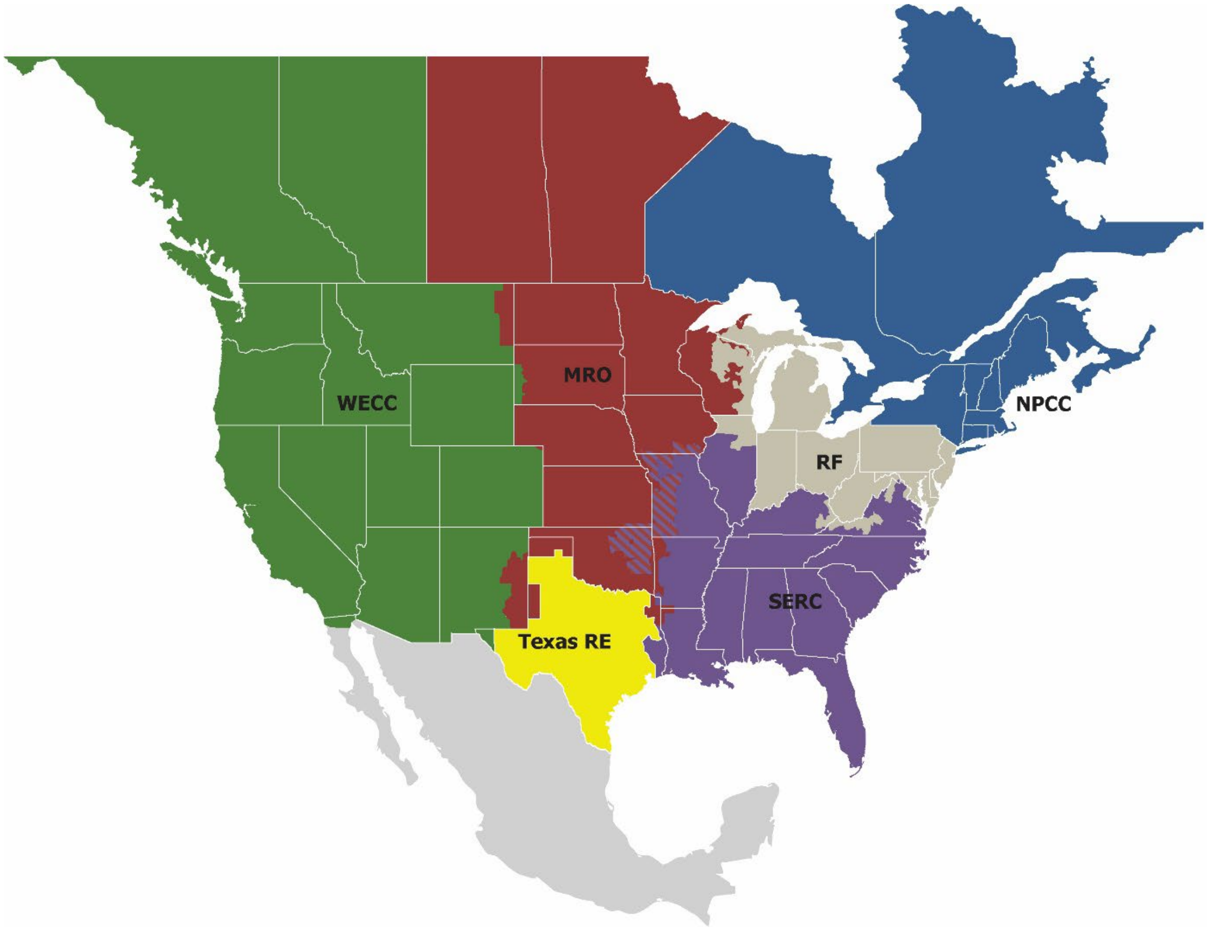
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of NERC and the six Regional Entities, is a highly reliable, resilient, and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entities as shown on the map and in the corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Introduction

This document explains the technical rationale and justification for the proposed Reliability Standard EOP-012-2. It provides stakeholders and the ERO Enterprise with an understanding of the technology and technical requirements in the Reliability Standard. This Technical Rationale and Justification for EOP-012-2 is not a Reliability Standard and should not be considered mandatory and enforceable.

Background

From February 8 through February 20, 2021, extreme cold weather and precipitation caused large numbers of generating units to experience outages, derates or failures to start, resulting in energy and transmission emergencies (referred to as the "Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 Northeast blackout and the August 1996 West Coast blackout. The Event was most severe from February 15 through February 18, 2021, and it contributed to power outages affecting millions of electricity customers throughout the regions of ERCOT, SPP, and MISO South. Additionally, the February 2021 event is the fourth cold weather event in the past 10 years, which jeopardized BPS reliability. A joint inquiry was conducted to discover reliability-related findings and develop recommendations from Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity staff. The FERC, NERC, and Regional Entity Staff Report into the February 2021 Cold Weather Outages[1] ("Joint Inquiry Report") was published on November 16, 2021.

Project 2021-07 is a two-phase project to address the 10 sub-recommendations in Key Recommendation 1 of the Joint Inquiry Report for new or enhanced NERC Reliability Standards. Reliability Standard EOP-012-1 was originally developed to address Recommendations 1d, 1e, and 1f of the Joint Inquiry Report through new and enhanced requirements for generator preparedness for extreme cold weather conditions. Reliability Standard EOP-012-2 was revised to address Key Recommendations 1a, 1b, and 1c as well as the Federal Energy Regulatory Commission ("FERC") directives in the February 2023 order approving the Phase 1 standards EOP-011-3 and EOP-012-2.[2]

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[1] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission

[2] *N. Am. Elec. Reliability Corp.*, 182 FERC ¶ 61,094 (2023) (FERC Order), *notice denying reh'g and providing for further consideration*, 183 FERC ¶ 62,034 (2023).

Defined Terms

The SDT developed five defined terms to be added to the NERC Glossary of Terms to make the requirements easier to read and understand. These five terms are:

Extreme Cold Weather Temperature

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

The definition of Extreme Cold Weather Temperature (ECWT) was developed by the Standard Drafting Team (SDT) to provide clarity to the Generator Owner (GO) on determining what temperature triggers the requirement obligations. Each GO should select a reliable source of data from a recording location near the plant to determine their ECWT. Sources could include, for example, the National Weather Service (NWS) or National Oceanographic and Atmospheric Administration (NOAA) weather stations, Federal Aviation Administration (FAA) weather stations, or Environment and Climate Change Canada location for Canadian entities[3], etc. NOAA's National Centers for Environmental Information provides Climate Data Online (CDO) as a free resource that includes quality-controlled weather data and 30-year Climate Normals[4]. In general, GOs should use the location nearest the plant, but may select a further location if geographic or local climatic patterns make a further location more representative of the weather at the generating unit. GOs may use on-site weather stations if data, which reasonably matches reliable nearby off-site sources since January 1, 2000, is available. The starting period chosen by the SDT to gather data to determine the lowest temperatures that occur near a facility is based on the completion of the modernization of the National Weather Service project known as MAR (Modernization and Associated Restructuring). This project was completed in the year 2000. In general, the National Weather Service modernization provides weather data to be available at most large airports. This will make it fairly accessible for companies to gather data and perform the required analysis. The December through February timeframe was selected to correspond to the meteorological winter, as defined by NOAA.[5]

The SDT discussed methods for determining an ECWT with engineering design professionals, and it was determined that it is typical engineering practice to use a statistical approach to determine the design temperature when implementing generation facility freeze protection measures. The SDT determined that only winter temperature values (i.e. between December and February) shall be used for the statistical approach and based on analysis of multiple weather data sites, it was determined that by using the lowest 0.2 percentile, there will be sufficient data points to ensure that a single hour at a temperature that may not be accurate, or may be a statistical anomaly, doesn't result in an overly conservative design or preclude the ability of the GO to use historical operating data to prove compliance to the requirements. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify a temperature which has been rarely surpassed, but which allows some margin for a GO to have previously demonstrated successful operation. The SDT considered using the lowest recorded hourly ambient temperature, but upon further review of the historical weather data and generally accepted design principles, determined that the statistical approach to setting the ECWT for a site's location was more reasonable.

If reliable data is not available at a single weather station back to January 1, 2000, the GO should document the methodology they use to determine their ECWT, such as appending data from multiple weather stations or selecting a complete data set from a weather station further away from the facility. Please reference the Calculating Extreme Cold Weather Temperature document drafted by the SDT for more information on how to calculate the ECWT.[6]

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[3] Environment and Climate Change Canada - Canada.ca

[4] https://www.ncei.noaa.gov/products/land-based-station/us-climate-normals

[5] https://www.ncei.noaa.gov/news/meteorological-versus-astronomical-seasons

[6] Report (nerc.com)

Generator Cold Weather Critical Component

Any generating unit component ~~and/~~or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component ~~and/~~or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius).

The SDT felt the best method to address where freeze protection measures should be implemented was to define a term which specifies a subset of components that may be susceptible to freezing and are critical to the operation of generating units. GOs should consider previous freeze-related issues experienced by the generating unit(s), as well as actions taken to mitigate those freeze-related issues, when establishing its list of Cold Weather Critical Components. The SDT also felt it is appropriate to specifically exclude components that are not susceptible to freezing due to being inside heated buildings that maintain the interior temperature above freezing.

The SDT's intent with regard to the language "that is under the Generator's Owner's control" was to clearly delineate that cold weather events external to the generation site such as loss of fuel supply or loss of auxiliary power to the site that resulted in a Generator Cold Weather Reliability Event (see definition below) would not be subject to this standard. Furthermore, ice buildup on transmission lines and/or high voltage lines between the generating station and point of interconnection with the Transmission Owner would not constitute a freezing condition in the context of this Standard, and therefore, these lines would not be considered a Generator Cold Weather Critical Component.

The SDT's intent with the use of the phrase "permanent building" is to refer to a structure that is in place year round, shall accommodate personnel entry, and has a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit for the purpose of protecting components from freezing (e.g. heated container that protects inverter-based resources or battery energy systems).

Fixed Fuel Supply Component

Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.

The SDT wanted to clarify the boundaries of responsibility for the GO as it relates to sites having fuel handling equipment within their control and responsibility to provide freeze protection. The intent of this definition is to clarify that mobile equipment is not part of this requirement, but permanent fixed equipment impacting fuel delivery needed for generation is included.

Generator Cold Weather Reliability Event

One of the following events for which the apparent cause(s) is due to freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, and freezing rain) on equipment within the Generator Owner's control, and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature:

(1) a forced derate of more than 10% of the total capacity of the unit but not less than 20 MWs for longer than four hours in duration;

(2) a start-up failure where the unit fails to synchronize within a specified start-up time; or

(3) a Forced Outage.

Key Recommendation 1d: *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective*

action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.

The Key Recommendation from the Joint Inquiry Report recommends a Reliability Standard that requires GOs to develop a Corrective Action Plan (CAP) for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing of equipment or impacts of freezing precipitation (e.g., sleet, snow, ice, or freezing rain) on equipment. The SDT felt that it was important to clearly call out freezing precipitation as these events were included in the outages and derates that identified as freezing in the Joint Inquiry Report. Furthermore, Key Recommendation 1c of the report requires GOs to account for the effect of precipitation. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation. The SDT is using the definition of apparent as defined in the Webster's dictionary as "clear or manifest to the understanding".

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity impact (specified as less than 20 MW by the SDT, which corresponds with the threshold for Bulk Electric System (BES) impacting Generation units), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. Also excluded are proactive operational actions to limit the potential of forced outages or derates. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures for conventional generation are defined using the GADS definition with the removal of "following an outage or reserve shutdown", since the definition of reserve shutdown is different in GADS than it is in some of the Regional Transmission Organizations (RTO's) and Independent System Operators (ISOs). From the GADS data reporting instructions, the startup period for each unit is determined by the operating company. It is unique for each unit and depends on the condition of the unit at the time of startup (cold, warm, or hot). A typical unit startup occurs in three phases: warm up, synchronization, and ramp up. NERC defines a startup period to begin with the command to start and end when the unit is synchronized. A Startup Failure begins when a problem preventing the unit from synchronizing occurs. The Startup failure ends when the unit is synchronized, another Startup Failure occurs, or the unit enters another permissible state.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the generator site's ECWT. By using the site's ECWT, as opposed to the generator unit minimum temperature as defined by the GO in Requirement R1 Part 1.2.2 as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types

- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs generating sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Generator Cold Weather Constraint

Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to ~~refer~~be limited to optimum practices, methods, or technologies, but ~~rather~~are also intended to ~~be~~include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions.

Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made:

- *Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter climate conditions to provide reasonable assurance of efficacy;*
- *Could not have been expected to accomplish the desired result; or*
- *Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed "unreasonable" when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life.*

The SDT reviewed the material from the FERC Order when determining how best to draft the Generator Cold Weather Constraints section. The SDT relied upon the industry's long practice of using "good utility practice" as a basis for implementing new practices, methods, or technologies and as such developed a definition that largely built upon this language and approach. The SDT also ensured that constraint language would be fully captured within the standard itself and was customized to the freeze protection measures that will be implemented as part of this standard.

The following non-comprehensive list contains examples that may, depending on the circumstances, constitute a Generator Cold Weather Constraint(s):

- Warranties that would be voided by application of a freeze protection measure
- Accelerated retirement of an existing generating unit
- Cancellation of new generating unit(s)
- Reduction in summer capability
- Introduces an increased personnel or safety risk
- Introduces a risk of noncompliance with environmental regulations
- Compromised ability to provide ancillary services
- Technology not utilized by a significant portion of the electric utility industry

Ultimately, it will be the GO’s responsibility to document in the declaration the circumstances and reasons why the modification needed to address the freezing issue was not implemented. A declaration that no further corrective actions will be taken is expected to be used sparingly.

The SDT is intentionally leaving room for interpretation as it would be impossible to foresee every potential circumstance that could possibly necessitate a review of potential freeze protection technologies across the breadth of the US and Canada and the breadth of generating unit types and ages that fall under this Standard. Furthermore, the SDT wants to ensure that the standard language supports the adoption of new freeze protection practices, methods, or technologies while not immediately requiring a new freeze protection practice, method, or technology to be implemented industry-wide when a leading utility pilots a novel approach, as this would be a disincentive to utilities piloting new technologies. The SDT encourages additional studying of freeze protection measures to remove constraints as appropriate over time.

Facilities

4.1. *Facilities:*

- ***4.1.1.*** *Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources:*
  - ***4.1.1.1.*** *A BES generating resource identified in the BES definition, Inclusion I2 and I4; or*
  - ***4.1.1.2.*** *A Blackstart Resource, identified in the BES definition, Inclusion I3.*

After reviewing this reference material, the SDT determined that EOP-012-2 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a BES resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Proposed EOP-012-2 clarifies which Facilities are subject to implementing freeze protection measures through specific language in Requirements R2 and R3.

Requirement R1

R1. *At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

- ***1.1.*** *Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and*
  - ***1.1.1.*** *If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation.*
- ***1.2.*** *Identify generating unit(s) cold weather data, to include:*
  - ***1.2.1.*** *Generating unit(s) operating limitations in cold weather to include:*
    - ***1.2.1.1.*** *Capability and availability;*
    - ***1.2.1.2.*** *Fuel supply and inventory concerns;*
    - ***1.2.1.3.*** *Start-up issues;*
    - ***1.2.1.4.*** *Fuel switching capabilities; and*
    - ***1.2.1.5.*** *Environmental constraints.*
  - ***1.2.2.*** *Generating unit(s) minimum:*
    - *Design temperature and if available, the concurrent wind speed and precipitation;*
    - *Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or*
    - *Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.*

Much of the criteria of R1 is carried over from the previously approved EOP-011-2 Standard and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities. For Requirement R 1.1, the GO is required to determine the ECWT for each unit using a reliable source of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The ECWT will be updated if a new lower ECWT is determined under the periodic review requirement of R1. Defining the operating limitations in R1.2.1 will make affected personnel more aware of unit capabilities and constraints as well as systems and practices that may be necessary to ensure reliability in cold weather, particularly when alternative fuels are involved. In addition, the unit minimum temperature identified in R1.2.2 is used to demonstrate compliance with R3 for existing units. The SDT chose one-hour of historical operating data recognizing that there is extremely limited historical operating data available for a unit below their ECWT. This was not to infer that the drafting team expects that existing generation will only reliably operate for one hour during an extreme cold weather event. The information contained within R1.2 is required to be requested by the Balancing Authorities in TOP-003-5 to make sure they have the most accurate unit performance information possible for their reliability analysis during the winter season.

It is recognized that the determination of a single unit minimum temperature is of limited value if applied without consideration of the other ambient conditions under which it was determined, that is, wind and

precipitation. Consideration of wind and precipitation, along with the minimum temperature, provides a greater understanding of the potential generating unit capability for cold weather resource planning. The standard requires that the GO include wind and precipitation data with their generating unit minimum temperature data when the data is available. The impact of deviations from this known temperature/wind/precipitation stated point are expected to be evaluated qualitatively. For example, if the historical minimum temperature occurred at low wind and dry conditions, and actual future cold weather event expected conditions are high winds with precipitation, planning personnel will recognize that a specific unit may not achieve the minimum temperature and can arrange for additional resources. The opposite also applies, i.e., if a calculated design minimum temperature assumes some level of wind and precipitation and actual cold weather expectations are for low wind and dry conditions, planning personnel will recognize that there is increased likelihood that a generation resource may continue to be available below its minimum temperature. If no information about wind or precipitation is known, wind and precipitation are assumed to be zero at the minimum temperature until further information is obtained.

Requirement R2

R2. *Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[7] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or*
- *Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.*

The Joint Inquiry Report Key Recommendation 1f references recommendation 12 of the 2011 report[8] suggesting that consideration should be given to designing all new generation plants and designing modifications to existing plants (unless committed solely for summer peaking purposes) to be able to perform at the lowest recorded ambient temperature for the nearest location for which historical weather data is available.

The SDT recommends this requirement apply to generation going into service three (3) years after the effective date of EOP-012-1 (October 1, 2027). The team believes that there needs to be allowances made for units that are in the development process, and for which the design phase may have already commenced. Generation that comes online before that time would be subject to Requirement R3.

The key recommendation identifies wind and freezing precipitation as examples of weather conditions to consider during the design of new generating units and modifications to existing plants. Realizing the many differences in weather that generator sites face across the ERO, the Project 2021-07 SDT developed language to provide additional context and detail around these weather conditions, while allowing flexibility for site-specific circumstances. The requirement language considers wind at a specific rate when designing new facilities. New units with commercial operation dates after the effective date of EOP-012-2 shall implement freeze protection measures such that their facilities are capable of continuous operation for not less than 12 hours at the ECWT assuming a concurrent twenty (20) mph wind speed on any exposed Generator Cold Weather Critical Component.

GOs with generating units that enter commercial operation on or after October 1, 2027 and cannot operate for twelve (12) continuous hours at the ECWT taking into account a concurrent twenty (20) mph wind speed shall develop a CAP. The GO then must implement the CAP according to R7. In addition, it is recognized that Generator Cold Weather Constraints may exist that prevent a new generating unit(s) from being capable of twelve (12) continuous hours of operation at their identified ECWT. Thus, the SDT included in R7.4, the option for the GO to make a declaration supporting why Generator Cold Weather Constraints preclude the ability to implement appropriate freeze protection measures. The SDT chose 12 hours of continuous operation because it is a typical length of the nighttime in winter in

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[7] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[8] sw-task-force-cover-new2.psd (nerc.com)

most regions of the US and Canada~~.~~ and typically include the hours with the coldest experienced temperatures. The SDT is of the opinion that tying the requirement to the 12-hour period would provide a reasonable level of reliability during a cold weather event. The SDT chose a concurrent sustained 20 mph wind speed after an evaluation using the wind chill formula developed by the NWS in the United States. Though wind chill temperature is not an exact science, it is widely understood to reflect the non-linear increased rate of convective heat loss due to air moving at different velocities. Commonly available charts show wind chill temperatures as a function of actual air temperature at various wind speeds. Approximately 2/3 of the wind chill temperature drop between 0 – 60 mph is achieved at 20 mph. Using the NWS chart, this holds true for still air temperatures starting at 40 F and dropping in 20-degree increments to -40 F. Further, 20 mph is a wind speed commonly experienced across the ERO and yet appropriately higher than the approximate average wind speeds in the United States and Canada, 6-12 mph and 8-11 mph respectively. Each of these three probabilistically infrequent conditions (the ECWT, a steady 20 mph wind, and a duration of 12 continuous hours at these conditions) is in and of itself conservative. When they have their effects combined, it results in a requirement that will significantly contribute to BES reliability during extreme cold weather conditions.

Requirement R3

R3. *Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[9] shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

- *Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or*
- *Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature.*

The SDT created a requirement for existing generating units, as defined in Requirement R3, to be able to operate at their ECWT. One expectation of the SDT is that generating units will be able to operate at this temperature as soon as possible, but not later than the timetable requirements laid out in Requirement R7. Furthermore, the SDT has the expectation that those generating units should be able to operate during extreme cold weather events at the ECWT; therefore, to address the FERC order on EOP-012-1 that rejected a one-hour timing requirement, the SDT chose not to put a specific time in R3. If a generating unit cannot adhere to the requirements of R3, it is required to develop a CAP that requires either new freeze protection measures, or modification of existing freeze protection measures, to be capable of operations at the ECWT (as calculated in Requirement 1).

As discussed in Requirement R7, unless a Generator Cold Weather Constraint declaration is made, the SDT designated timetables are to be included in the implementation of CAPs to ensure they are not unresolved for a significant period of time.

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[9] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R4

R4. *Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: [Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

- ***4.1*** *The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;*
- ***4.2*** *The generating unit cold weather data, as determined in Part 1.2;*
- ***4.3*** *Documentation identifying Generator Cold Weather Critical Components;*
- ***4.4*** *Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and*
- ***4.5*** *Annual inspection and maintenance of generating unit(s) freeze protection measures.*

General Considerations

Requirement R4 requires GOs to develop and maintain cold weather preparedness plans for their unit(s) and describes the information and documentation required in such plans. It is an expansion of the cold weather preparedness plan required under Requirement R7 of EOP-011-2~~,~~ and is intended to be used and reviewed regularly by the GO. R4.5 requires the GO to annually inspect and perform necessary maintenance of freeze protection measures. Working in concert with other parts of EOP-012-2, including R1, R5, and R6, the substantive elements of the plan will be subject to review requirements, updated as necessary, and the GO is required to annually train personnel on its requirements.

Requirement R4 Part 4.1

In R4.1, the GO is required to include in the cold weather preparedness plan the lowest ECWT, as calculated pursuant to R1, for each unit using reliable source(s) of data. The SDT believes that the GO is in the best position to select the most representative weather information relative to its generating unit. The cold weather preparedness plan will be updated if a new lowest ECWT is calculated under the periodic review requirement of R1.

Requirement R4 Part 4.2

R4.2 is intended to capture within the cold weather preparedness plan the information being developed pursuant to R1.2, which is carried over from the previously approved EOP-011-2 standard, and requires the GO to document several cold weather performance parameters for the unit. This information is valuable, and in some cases, must be shared with other entities consistent with the data specification requirements contained in TOP-003-5 and IRO-010-4. A requirement for the GO to document this information within the cold weather preparedness plan ensures the information is readily available and documented when the GO responds to a data specification. See the Technical Rationale for Requirement R1 for substantive rationale regarding the operating limitations and generating unit minimum temperatures documented in the cold weather preparedness plan.

Requirement R4 Part 4.3

In R4.3, the GO identifies the Generator Cold Weather Critical Components to help inform their decision on where to implement appropriate freeze protection measures. The NERC *Reliability Guideline, Generating Unit Winter Weather Readiness – Current Industry Practices*[10], presents a suggested list of components that GOs may choose to utilize when developing their own Generator Cold Weather Critical Component inventory.

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[10] Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices

Requirement R4 Part 4.4

R4.3 requires GOs to document the freeze protection measures implemented on Generator Cold Weather Critical Components. These freeze protection measures may include those to reduce the cooling effects of wind. Requirement R4 does not require GOs to install new freeze protection measures to reduce the cooling effects of wind, but rather to determine if freeze protection measures will protect against heat loss and the effect of freezing precipitation, where applicable, and document those measures (e.g., water-resistant insulation, protective shielding, insulated boxes, etc.). These measures could include temporary measures as well, such as wind breaks, but there is no expectation for entities to list all climate-controlled areas as freeze protection measures.

Requirement R4 Part 4.5

R4.5 is carried over from the previously approved EOP-011-2 standard and requires annual inspection and maintenance of the freeze protection measures identified in the cold weather preparedness plan. This requirement ensures these freeze protection measures will be ready and serviceable when needed.

Requirement R5

R5. *Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide annual training to its maintenance or operations personnel responsible for implementing the cold weather preparedness plan(s) developed pursuant to Requirement R4. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]*

Key Recommendation 1e: To revise EOP-011-2, R8, to require Generator Owners and Generator Operators to conduct annual unit-specific cold weather preparedness plan training.

Project 2019-06 Cold Weather established the requirement that the GO, in conjunction with its Generator Operator, would provide generating unit-specific training for its personnel responsible for implementing cold weather preparedness plan(s) for its generating units. The Joint Inquiry Report recommended that EOP-011-2 R8 be revised to require the generating unit-specific training be provided on an "annual" basis. The Joint Inquiry Report explains "Responses from the GOs/GOPs involved in the Event show that annual training is not yet universal in the Event Area."[11] To address this recommendation, the SDT has utilized the existing language in EOP-011-2 and added the word "annual" to require the training on an annual basis. The requirement is deleted from EOP-011-3, and will be placed as a requirement in a new EOP-012-2 Reliability Standard dedicated solely to extreme cold weather preparedness.

The intent of the SDT is that training ~~shall~~ be provided to operational personnel who are responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. The operational personnel ~~includes~~may include employees of the Registered Entity as well as any dedicated on-site full-time contractors or equipment OEM personnel responsible for inspection, maintenance, and/or ensuring operability of freeze protection measures. Vendors who perform inspection, maintenance, or installation of freeze protection measures prior to the winter season do not need to receive the training on the cold weather preparedness plan.

The SDT anticipates that training for personnel ~~shall~~may include instructions on actions taken to prepare the generating unit(s) for cold weather operations prior to the cold weather season as well as on actions taken when cold weather events (severe low temperatures, significant accumulation of ice/snow, etc.) are forecasted and occurring in real time. This training may include response to freeze protection panel alarms, troubleshooting and repair of freeze protection circuitry, identification of plant areas most affected by winter conditions, application of portable heaters, review of special inspections or rounds implemented during severe weather, fuel switching procedures, and maintenance of freeze protection measures, etc.

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[11] The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission, p190

Requirement R6

R6. *Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[12] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: [Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

- **6.1.** *A summary of the identified cause(s) for the Generator Cold Weather Reliability Event, where applicable, and any relevant associated data;*
- **6.2.** *A review of applicability to similar equipment at generating units owned by the Generator Owner; and*
- **6.3.** *An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.*

Key Recommendation 1d: *To require Generator Owners that experience outages, failures to start, or derates due to freezing to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan (CAP) for the identified equipment, and evaluate whether the CAP applies to similar equipment for its other generating units. Based on the evaluation, the Generator Owner will either revise its cold weather preparedness plan to apply the CAP to the similar equipment, or explain in a declaration (a) why no revisions to the cold weather preparedness plan are appropriate, and (b) that no further corrective actions will be taken. The standard drafting team should specify the specific timing for the CAP to be developed and implemented after the outage, derate, or failure to start, but the CAP should be developed as quickly as possible, and be completed by no later than the beginning of the next winter season.*

The Key Recommendation from the Joint Inquiry Report recommends a standard that requires GOs to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The Joint Inquiry Report identifies that most of the outages and derates in the February 2021 event were due to freezing of instrumentation, transmitters, sensing lines, or wind turbine blades (p 166 in the Joint Inquiry Report). As such, the SDT followed the Joint Inquiry Report recommendation to require a CAP when the apparent cause of the event is freezing. The SDT has developed parameters around these events to clarify a reasonable baseline of what level of derate qualifies as an event, and provide additional language to identify what constitutes a start-up failure. With the additional clarifications, the SDT determined that the standard would benefit from a defined term, to clearly and efficiently state what constitutes an event. The result is to a new defined term, Generator Cold Weather Reliability Event, that defines the circumstances for which a CAP is required (i.e., when a freezing event affects the equipment within the control of the GO). The defined term will make the standard easier to understand and implement by providing clear and reasonable factors to determine whether the impact of an event requires mitigation.

General Considerations for All CAPs

To simplify the proposed requirements related to creating a CAP, the SDT used the NERC Definition of a CAP. The CAP definition reads "A list of actions and an associated timetable for implementation to remedy a specific problem." As written, the definition requires two parts for a document to qualify as a CAP, i.e., a list of items to be addressed and a timeline for completion. A CAP without both a list of actions and the timeline to implement is not complete.

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[12] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

Requirement R6

The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived (specified as four hours by the SDT) or of small capacity (specified as 10% of the total capacity of the unit, but not less than 20 MW impacts), are excluded from the CAP requirement to limit the administrative burden to GOs for events that are minimally impacting to the BES. It should be noted that nothing in this standard prevents a GO from taking its own corrective actions resulting from such events. Startup failures are defined using the GADS definition with the removal of “following an outage or reserve shutdown”, since the definition of reserve shutdown is different in GADS than it is in some of the RTO’s.

R6 requires the GO to act within 150 days or by July 1 to develop the CAP. These timeframe options were chosen by the SDT to allow GOs to review multiple events holistically following a winter season if that scenario occurs, and create one CAP for components with common failure causes.

The SDT determined that CAPs will be required for any freezing event that occurs at temperatures above the site’s ECWT. By using the site’s ECWT, as opposed to the Generator Unit Minimum Temperature as defined by the GO as the threshold, this achieves the following:

- Provides a consistent basis for the temperature at which CAPS are required for all GOs
- Provides a consistent basis for when CAPS are required for all generation types
- Provides a consistent basis for when CAPS are required regardless of the level of effort that GOs may have applied to-date winterizing their generators such that they can operate to the ECWT that their sites will reasonably experience
- Removes any incentive (perceived or real) to not further winterize GOs sites to meet the ECWT at the GO site by not providing a window where one site might not be subject to the CAP requirement while sites in the same vicinity experiencing the same temperatures are subject to this requirement
- Removes any disincentive for GOs to design the units to operate well below the ECWT for a site by not requiring them to perform CAPs while sites in the same vicinity experiencing the same temperatures are subject to this requirement

Requirement R7

R7. *Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

- ***7.1.*** *Include a timetable for implementing the selected corrective action(s) that shall:*
  - ***7.1.1.*** *List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan;*
  - ***7.1.2.*** *List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan;*
  - ***7.1.3.*** *List the updates to the cold weather preparedness plan required under Requirement R4 to identify the updates or additions to the Generator Cold Weather Critical Components and their freeze protection measures;*
- ***7.2.*** *Implement the Corrective Action Plan in accordance with the specified timetables in Requirement R7 Part 7.1;*
- ***7.3.*** *Update the Corrective Action Plan~~,~~ action(s) and timetable(s), with justification, if corrective action(s) change or timetable(s) exceed the timelines in Requirement R7 Part 7.1; and*
- ***7.4.*** *Document in a declaration, with justification, any Generator Cold Weather Constraint that precludes the Generator Owner from implementing selected action(s) contained within the Corrective Action Plan.*

In EOP-012-2, R7 is expanded from EOP-012-1 to provide additional definition on the requirements to implement a CAP, and to meet the direction for this requirement set forward by FERC. One such direction was to define expectations on implementation timelines for CAPs. Under EOP-012-2 R7, CAPs are divided into two categories: 1) those which address existing freeze protection measure(s), and 2) those which require new equipment or freeze protection measure(s). The former category requires completion of the CAP to remedy the cause(s) within 24 months, and the latter requires completion of the CAP within 48 months. The SDT modeled this timeline structure after similar CAP implementation requirements in TPL-007. These are maximum durations and entities are expected to work diligently to correct issues and take prompt actions to mitigate future issues as soon as practical. At the same time, the SDT recognizes that the following limitations make the 24 and 48 calendar months maximum timelines reasonable: scoping applicability to similar units, freeze protection engineering and design, project development, annual budgeting process, material supply lead times, outage scheduling, skilled labor availability, and startup/commissioning.

Considering this expectation, the SDT believes that the 24-month/48-month timeframe for execution of CAPs under R7 will allow NERC and the industry to observe the success of this measure through completion of corrective actions in the near future. The SDT added part 7.1.3. for completeness to ensure updates would be made to document needed changes to the cold weather preparedness plan(s) to eliminate future issues. In establishing these timeframes, the SDT considered the FERC directives, and that NERC include a timeframe for completion for CAPs, shorten the implementation plans, and that NERC stagger Implementation Plans to have more generation compliant faster. The SDT considered a staggered timeframe both in the standard and ~~IP~~Implementation Plan but determined that more aggressive completion time frames, combined with a shorter implementation plan, would serve the reliability goal to have generating units operating at the ECWT with less administrative burden that could be associated with proving compliance with a staggered implementation plan fleet wide. There is ~~not~~no specific staggering requirement within the 24- or 48-month completing time frames because of industry concern about additional complications of completing work efficiently. There will be some natural staggering due to unit outages and personnel availability as an example.

Within the revised R7, the GO is required to implement the CAP within a timetable defined by the GO in the CAP, but limited by maximum durations in section 7.1. If the GO is unable to complete the CAP within the time limits in section 7.1, or the corrective action(s) change, the GO is required to update the CAP with justification. GOs that are unable to complete the CAP due to a Generator Cold Weather Constraint are required under Section 7.4 to create a declaration of such constraint which is required to be provided to the Balancing Authority in R8. Further requirements of the Generator Cold Weather Constraint are provided under R8.

In the case of a CAP triggered by a forced derate, forced outage, or startup failure and for which the apparent cause is the failure of relatively simple existing piece of freeze protection equipment, the scope of the Corrective Action Plan may be documented after the fact. Such prompt repairs may be completed before creation of the CAP, and the GO may complete the implementation of the CAP simply by evaluating the requirements of R6 and documenting how and when the repair work was completed. An example of this circumstance would be a freezing event caused by a single heat trace circuit which would have been sufficient to prevent the event had it not failed.

If one or more actions within a CAP fall under a constraint declaration, it is the intent of the SDT that only those ~~selected~~affected actions would not be implemented as part of the CAP. The remaining actions should be implemented.

Requirement R8

R8. *Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

8.1 *Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and*

8.2 *Update the operating limitations associated with capability and availability under Requirement R1 Part 1.2 if applicable.*

In the FERC order, the Commission expressed concern that a GO may make a constraint declaration without informing planning and operational entities (e.g., the Balancing Authority) that are expecting the reliable operation of the generating unit to its ECWT.[1] An additional concern was that the constraint declarations may be used by a functional entity as an opt-out of compliance with requirements set forth in the standards or in a corrective action plan.[2] To mitigate the concern, the Commission directed NERC to work with Commission staff and submit a data collection and assessment plan that contains information related to GO constraint declarations and explanations thereof.[3] The SDT expects that ERO compliance staff will be the entity responsible for reviewing declared constraints and assessing compliance with the constraint definition criteria in accordance with established processes.

The SDT developed R8 to require the GO to perform a review and update any constraint declarations as needed. The SDT believes that constraints will be the exception. When GO's experience a ~~constraint~~condition such that they need to ~~take~~make a constraint declaration, the SDT believes the limiting factor causing the constraints will not change quickly, and as such a 5-year review is the appropriate time. While the SDT implemented a 5-year maximum time frame to review, it is the ~~SDTs~~SDT's intent that the GO's will be cognizant of their Cold Weather Constraints and will proactively remove these constraints when and where warranted. For instance, if a unit is slated for retirement and this status changes, it is the expectation of the SDT that the GO will review constraints based upon this ~~impending retirement~~change in condition and will no longer take this constraint for future CAPs that may require the implementation of freeze protection measures on this unit given that it is no longer slated for retirement.

Updated constraint declarations would also require an update to the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003-5 and IRO-010-4.

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[1] FERC Order, 182 FERC ¶ 61,094 at P 64.

[2] Id. At P 66.

[3] See id at PP 11, 68, 94-95.

Standards Announcement

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Final Ballots Open through February 9, 2024

Now Available

Final ballots for **Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination** are open through **8 p.m. Eastern, Friday, February 9, 2024** for the following standard and implementation plan:

- EOP-012-2 – Extreme Cold Weather Preparedness and Operations
- Implementation Plan

Balloting

In the final ballot, votes are counted by exception. Votes from the previous ballot are automatically carried over in the final ballot. Only members of the applicable ballot pools can cast a vote. Ballot pool members who previously voted have the option to change their vote in the final ballot. Ballot pool members who did not cast a vote during the previous ballot can vote in the final ballot.

Members of the ballot pool(s) associated with this project can log into the Standards Balloting and Commenting System (SBS) and submit votes here.

- *Contact NERC IT support directly at https://support.nerc.net/ (Monday – Friday, 8 a.m. - 5 p.m. Eastern) for problems regarding accessing the SBS due to a forgotten password, incorrect credential error messages, or system lock-out.*
- *Passwords expire every **6 months** and must be reset.*
- *The SBS **is not** supported for use on mobile devices.*
- *Please be mindful of ballot and comment period closing dates. We ask to **allow at least 48 hours** for NERC support staff to assist with inquiries. Therefore, it is recommended that users try logging into their SBS accounts **prior to the last day** of a comment/ballot period.*

Next Steps

The voting results will be posted and announced after the ballots close. If approved, the standards will be submitted to the Board of Trustees for adoption and then filed with the appropriate regulatory authorities.

For information on the Standards Development Process, refer to the Standard Processes Manual.

For more information or assistance, contact Manager of Standards Development, Alison Oswald (via email) or at 404-275-9410.

North American Electric Reliability Corporation
3353 Peachtree Rd, NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

BALLOT RESULTS

Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 EOP-012-2 FN 4 ST
Voting Start Date: 2/5/2024 8:09:48 AM
Voting End Date: 2/9/2024 8:00:00 PM
Ballot Type: ST
Ballot Activity: FN
Ballot Series: 4
Total # Votes: 268
Total Ballot Pool: 301
Quorum: 89.04
Quorum Established Date: 2/5/2024 10:11:27 AM
Weighted Segment Value: 82.01

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	78	1	57	0.934	4	0.066	0	8	9
Segment: 2	7	0.7	0	0	7	0.7	0	0	0
Segment: 3	68	1	49	0.925	4	0.075	0	7	8
Segment: 4	17	1	13	0.929	1	0.071	0	2	1
Segment: 5	74	1	52	0.867	8	0.133	0	4	10
Segment: 6	48	1	34	0.895	4	0.105	0	5	5
Segment: 7	1	0.1	1	0.1	0	0	0	0	0
Segment: 8	1	0	0	0	0	0	0	1	0

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.6	6	0.6	0	0	0	1	0
Totals:	301	6.4	212	5.249	28	1.151	0	28	33

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Affirmative	N/A
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Affirmative	N/A
1	Ameren - Ameren Services	Tamara Evey		Affirmative	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Affirmative	N/A
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		None	N/A
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Basin Electric Power Cooperative	David Rudolph		Affirmative	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu		Abstain	N/A
1	Berkshire Hathaway Energy - MidAmerican Energy Co.	Terry Harbour		Affirmative	N/A
1	Black Hills Corporation	Micah Runner		Affirmative	N/A
1	Bonneville Power Administration	Kamala Rogers-Holliday		Abstain	N/A
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Affirmative	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Affirmative	N/A
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Affirmative	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Affirmative	N/A
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Affirmative	N/A
1	Glencoe Light and Power Commission	Terry Volkmann		Affirmative	N/A
1	Great River Energy	Gordon Pietsch		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	N/A
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Affirmative	N/A
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Affirmative	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		None	N/A
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Affirmative	N/A
1	Muscatine Power and Water	Andrew Kurriger		Affirmative	N/A
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Affirmative	N/A
1	Nebraska Public Power District	Jamison Cawley		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	New York Power Authority	Daniel Valle		Affirmative	N/A
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Alison Nickells		Affirmative	N/A
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Affirmative	N/A
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Affirmative	N/A
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	N/A
1	Platte River Power Authority	Marissa Archie		Affirmative	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Affirmative	N/A
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		None	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A
1	Santee Cooper	Chris Wagner		Negative	N/A
1	SaskPower	Wayne Guttormson		None	N/A
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Affirmative	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Affirmative	N/A
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Affirmative	N/A
1	Tennessee Valley Authority	David Plumb		Affirmative	N/A
1	Tri-State G and T Association, Inc.	Donna Wood		Affirmative	N/A
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	N/A
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	California ISO	Darcy O'Connell		Negative	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Negative	N/A
2	Independent Electricity System Operator	Helen Lainis		Negative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Negative	N/A
2	Midcontinent ISO, Inc.	Bobbi Welch		Negative	N/A
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Negative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Negative	N/A
3	AEP	Kent Feliks		Affirmative	N/A
3	Ameren - Ameren Services	David Jendras Sr	Mark Fowler	Affirmative	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Affirmative	N/A
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	None	N/A
3	BC Hydro and Power Authority	Ming Jiang		Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Affirmative	N/A
3	Black Hills Corporation	Josh Combs		Affirmative	N/A
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	N/A
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Affirmative	N/A
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A
3	Eversource Energy	Vicki O'Leary		Affirmative	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	George Kirschner		None	N/A
3	JEA	Marilyn Williams		None	N/A
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		None	N/A
3	Lincoln Electric System	Sam Christensen		Affirmative	N/A
3	Los Angeles Department of Water and Power	Fausto Serratos		Abstain	N/A
3	M and A Electric Power Cooperative	Gary Dollins		Affirmative	N/A
3	Manitoba Hydro	Mike Smith		Negative	N/A
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Affirmative	N/A
3	Muscatine Power and Water	Seth Shoemaker		Affirmative	N/A
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Affirmative	N/A
3	New York Power Authority	David Rivera		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Affirmative	N/A
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Affirmative	N/A
3	Orlando Utilities Commission	Ballard Mutters		None	N/A
3	OTP - Otter Tail Power Company	Wendi Olson		Affirmative	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	N/A
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Affirmative	N/A
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Santee Cooper	Vicky Budreau		Negative	N/A
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Abstain	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A
3	Snohomish County PUD No. 1	Holly Chaney		Affirmative	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Affirmative	N/A
3	Tennessee Valley Authority	Ian Grant		Affirmative	N/A
3	Tri-State G and T Association, Inc.	Ryan Walter		Affirmative	N/A
3	Wabash Valley Power Association	Scott Berry		Affirmative	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Affirmative	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	N/A
4	CMS Energy - Consumers Energy Company	Aric Root		None	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Georgia System Operations Corporation	Katrina Lyons		Affirmative	N/A
4	MGE Energy - Madison Gas and Electric Co.	Adam Lee		Affirmative	N/A
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Affirmative	N/A
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Affirmative	N/A
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Affirmative	N/A
5	AES - AES Corporation	Ruchi Shah		Negative	N/A
5	Ameren - Ameren Missouri	Sam Dwyer		Affirmative	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Affirmative	N/A
5	Basin Electric Power Cooperative	Amanda Wangler		None	N/A
5	BC Hydro and Power Authority	Quincy Wang		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Affirmative	N/A
5	Black Hills Corporation	Sheila Suurmeier	Carly Miller	Affirmative	N/A
5	Bonneville Power Administration	Pamela Van Calcar		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	N/A
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Affirmative	N/A
5	Dairyland Power Cooperative	Tommy Drea		Affirmative	N/A
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		Affirmative	N/A
5	Duke Energy	Dale Goodwine		Affirmative	N/A
5	Enel Green Power	Natalie Johnson		None	N/A
5	Entergy - Entergy Services, Inc.	Gail Golden		None	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Great River Energy	Jacalynn Bentz		Affirmative	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Affirmative	N/A
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	N/A
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Affirmative	N/A
5	Lakeland Electric	Carmen Rodriguez		None	N/A
5	Lincoln Electric System	Brittany Millard		Affirmative	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Affirmative	N/A
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Affirmative	N/A
5	Nebraska Public Power District	Ronald Bender		Affirmative	N/A
5	New York Power Authority	Zahid Qayyum		Affirmative	N/A
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Affirmative	N/A
5	NRG - NRG Energy, Inc.	Patricia Lynch		Affirmative	N/A
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A
5	Oglethorpe Power Corporation	Donna Johnson		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Omaha Public Power District	Kayleigh Wilkerson		Affirmative	N/A
5	Ontario Power Generation Inc.	Constantin Chitescu		Negative	N/A
5	Orlando Utilities Commission	Dania Colon		None	N/A
5	OTP - Otter Tail Power Company	Stacy Wahlund		Affirmative	N/A
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	N/A
5	Pattern Operators LP	George E Brown		Affirmative	N/A
5	Platte River Power Authority	Jon Osell		Affirmative	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Affirmative	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Negative	N/A
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Abstain	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Affirmative	N/A
5	Talen Generation, LLC	Donald Lock		Negative	N/A
5	Tennessee Valley Authority	Darren Boehm		Affirmative	N/A
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Affirmative	N/A
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	N/A
5	Vistra Energy	Daniel Roethemeyer		Affirmative	N/A
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Mathew Miller		Affirmative	N/A
6	Ameren - Ameren Services	Robert Quinlivan		Affirmative	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman	Brandon Smith	Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		Affirmative	N/A
6	Black Hills Corporation	Rachel Schuldt		Affirmative	N/A
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		Affirmative	N/A
6	Con Ed - Consolidated Edison Co. of New York	Jason Chandler		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Affirmative	N/A
6	Entergy	Julie Hall		Affirmative	N/A
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	N/A
6	Lincoln Electric System	Eric Ruskamp		Affirmative	N/A
6	Manitoba Hydro	Kelly Bertholet		Negative	N/A
6	Muscatine Power and Water	Nicholas Burns		Affirmative	N/A
6	New York Power Authority	Shelly Dineen		Affirmative	N/A
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	N/A
6	NRG - NRG Energy, Inc.	Martin Sidor		Affirmative	N/A
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Affirmative	N/A
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Affirmative	N/A
6	Public Utility District No. 1 of Chelan County	Tamarra Hardie		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Negative	N/A
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Abstain	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Affirmative	N/A
6	Tennessee Valley Authority	Armando Rodriguez		Affirmative	N/A
6	WEC Energy Group, Inc.	David Boeshaar		None	N/A
6	Western Area Power Administration	Jennifer Neville		Affirmative	N/A
6	Xcel Energy, Inc.	Steve Szablya		None	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		Affirmative	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Affirmative	N/A

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BALLOT RESULTS

Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination | Phase 2 Implementation Plan | EOP-012-2 FN 4 OT
Voting Start Date: 2/5/2024 8:10:03 AM
Voting End Date: 2/9/2024 8:00:00 PM
Ballot Type: OT
Ballot Activity: FN
Ballot Series: 4
Total # Votes: 263
Total Ballot Pool: 297
Quorum: 88.55
Quorum Established Date: 2/5/2024 10:11:29 AM
Weighted Segment Value: 89.85

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 1	76	1	55	0.917	5	0.083	0	7	9
Segment: 2	6	0.6	5	0.5	1	0.1	0	0	0
Segment: 3	67	1	48	0.906	5	0.094	0	6	8
Segment: 4	16	1	12	0.923	1	0.077	0	2	1
Segment: 5	75	1	53	0.883	7	0.117	0	4	11
Segment: 6	48	1	32	0.842	6	0.158	0	5	5
Segment: 7	1	0.1	1	0.1	0	0	0	0	0
Segment: 8	1	0	0	0	0	0	0	1	0

Segment	Ballot Pool	Segment Weight	Affirmative Votes	Affirmative Fraction	Negative Votes w/ Comment	Negative Fraction w/ Comment	Negative Votes w/o Comment	Abstain	No Vote
Segment: 9	0	0	0	0	0	0	0	0	0
Segment: 10	7	0.5	5	0.5	0	0	0	2	0
Totals:	297	6.2	211	5.571	25	0.629	0	27	34

BALLOT POOL MEMBERS

Show All entries Search: Search

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	AEP - AEP Service Corporation	Dennis Sauriol		Affirmative	N/A
1	Allete - Minnesota Power, Inc.	Hillary Creurer		Affirmative	N/A
1	Ameren - Ameren Services	Tamara Evey		Affirmative	N/A
1	APS - Arizona Public Service Co.	Daniela Atanasovski		Affirmative	N/A
1	Arizona Electric Power Cooperative, Inc.	Jennifer Bray		Affirmative	N/A
1	Arkansas Electric Cooperative Corporation	Emily Corley		Abstain	N/A
1	Associated Electric Cooperative, Inc.	Mark Riley		Affirmative	N/A
1	Austin Energy	Thomas Standifur		Affirmative	N/A
1	Avista - Avista Corporation	Mike Magruder		None	N/A
1	Balancing Authority of Northern California	Kevin Smith	Tim Kelley	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Basin Electric Power Cooperative	David Rudolph		Affirmative	N/A
1	BC Hydro and Power Authority	Adrian Andreoiu		Abstain	N/A
1	Black Hills Corporation	Micah Runner		Negative	N/A
1	CenterPoint Energy Houston Electric, LLC	Daniela Hammons		Affirmative	N/A
1	Central Iowa Power Cooperative	Kevin Lyons		Affirmative	N/A
1	Colorado Springs Utilities	Corey Walker		Affirmative	N/A
1	Con Ed - Consolidated Edison Co. of New York	Dermot Smyth		Affirmative	N/A
1	Dairyland Power Cooperative	Karrie Schuldt		Affirmative	N/A
1	Dominion - Dominion Virginia Power	Elizabeth Weber		None	N/A
1	Duke Energy	Katherine Street		Affirmative	N/A
1	Entergy	Brian Lindsey		Affirmative	N/A
1	Evergy	Kevin Frick	Alan Kloster	Affirmative	N/A
1	Exelon	Daniel Gacek		Affirmative	N/A
1	FirstEnergy - FirstEnergy Corporation	Theresa Ciancio		Affirmative	N/A
1	Georgia Transmission Corporation	Greg Davis		Affirmative	N/A
1	Glencoe Light and Power Commission	Terry Volkmann		Affirmative	N/A
1	Great River Energy	Gordon Pietsch		Affirmative	N/A
1	Hydro-Quebec (HQ)	Nicolas Turcotte		Negative	N/A
1	IDACORP - Idaho Power Company	Sean Steffensen		None	N/A
1	Imperial Irrigation District	Jesus Sammy Alcaraz	Denise Sanchez	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	International Transmission Company Holdings Corporation	Michael Moltane	Allie Gavin	Abstain	N/A
1	JEA	Joseph McClung		Affirmative	N/A
1	KAMO Electric Cooperative	Micah Breedlove		Affirmative	N/A
1	Lakeland Electric	Larry Watt		None	N/A
1	Lincoln Electric System	Josh Johnson		Affirmative	N/A
1	Long Island Power Authority	Isidoro Behar		Abstain	N/A
1	Los Angeles Department of Water and Power	faranak sarbaz		Abstain	N/A
1	Lower Colorado River Authority	Matt Lewis	Laura Hankins	Affirmative	N/A
1	M and A Electric Power Cooperative	William Price		Affirmative	N/A
1	Manitoba Hydro	Nazra Gladu		None	N/A
1	Minnkota Power Cooperative Inc.	Theresa Allard	Nikki Carson-Marquis	Affirmative	N/A
1	Muscatine Power and Water	Andrew Kurriger		Affirmative	N/A
1	N.W. Electric Power Cooperative, Inc.	Mark Ramsey		Affirmative	N/A
1	National Grid USA	Michael Jones		Affirmative	N/A
1	NB Power Corporation	Jeffrey Streifling		Affirmative	N/A
1	Nebraska Public Power District	Jamison Cawley		Affirmative	N/A
1	New York Power Authority	Daniel Valle		Affirmative	N/A
1	NextEra Energy - Florida Power and Light Co.	Silvia Mitchell		Abstain	N/A
1	NiSource - Northern Indiana Public Service Co.	Alison Nickells		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Northeast Missouri Electric Power Cooperative	Brett Douglas		Affirmative	N/A
1	OGE Energy - Oklahoma Gas and Electric Co.	Terri Pyle		Affirmative	N/A
1	Omaha Public Power District	Doug Peterchuck		Affirmative	N/A
1	Oncor Electric Delivery	Byron Booker	Gul Khan	Abstain	N/A
1	OTP - Otter Tail Power Company	Charles Wicklund		Affirmative	N/A
1	Pacific Gas and Electric Company	Marco Rios	Michael Johnson	Negative	N/A
1	Platte River Power Authority	Marissa Archie		Affirmative	N/A
1	PNM Resources - Public Service Company of New Mexico	Lynn Goldstein		Affirmative	N/A
1	Portland General Electric Co.	Brooke Jockin		None	N/A
1	PPL Electric Utilities Corporation	Michelle McCartney Longo		Affirmative	N/A
1	Public Utility District No. 1 of Chelan County	Diane E Landry		Affirmative	N/A
1	Public Utility District No. 1 of Pend Oreille County	Kevin Conway		None	N/A
1	Public Utility District No. 1 of Snohomish County	Alyssia Rhoads		Affirmative	N/A
1	Sacramento Municipal Utility District	Wei Shao	Tim Kelley	Affirmative	N/A
1	Salt River Project	Sarah Blankenship	Israel Perez	Affirmative	N/A
1	Santee Cooper	Chris Wagner		Negative	N/A
1	SaskPower	Wayne Guttormson		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
1	Sempra - San Diego Gas and Electric	Mohamed Derbas		Affirmative	N/A
1	Southern Company - Southern Company Services, Inc.	Matt Carden		Affirmative	N/A
1	Sunflower Electric Power Corporation	Paul Mehlhaff		Affirmative	N/A
1	Tacoma Public Utilities (Tacoma, WA)	John Merrell	Jennie Wike	Affirmative	N/A
1	Tallahassee Electric (City of Tallahassee, FL)	Scott Langston		Affirmative	N/A
1	Tennessee Valley Authority	David Plumb		Affirmative	N/A
1	Tri-State G and T Association, Inc.	Donna Wood		Affirmative	N/A
1	U.S. Bureau of Reclamation	Richard Jackson		Negative	N/A
1	Western Area Power Administration	Sean Erickson	Kimberly Bentley	None	N/A
1	Xcel Energy, Inc.	Eric Barry		Affirmative	N/A
2	Electric Reliability Council of Texas, Inc.	Kennedy Meier		Affirmative	N/A
2	Independent Electricity System Operator	Helen Lainis		Negative	N/A
2	ISO New England, Inc.	John Pearson	Keith Jonassen	Affirmative	N/A
2	Midcontinent ISO, Inc.	Bobbi Welch		Affirmative	N/A
2	PJM Interconnection, L.L.C.	Thomas Foster	Elizabeth Davis	Affirmative	N/A
2	Southwest Power Pool, Inc. (RTO)	Joshua Phillips	Shannon Mickens	Affirmative	N/A
3	AEP	Kent Feliks		Affirmative	N/A
3	Ameren - Ameren Services	David Jendras Sr	Mark Fowler	Affirmative	N/A
3	APS - Arizona Public Service Co.	Jessica Lopez		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Arkansas Electric Cooperative Corporation	Ayslynn Mcavoy		Abstain	N/A
3	Associated Electric Cooperative, Inc.	Todd Bennett		Affirmative	N/A
3	Austin Energy	Lovita Griffin		Affirmative	N/A
3	Avista - Avista Corporation	Robert Follini		Affirmative	N/A
3	BC Hydro and Power Authority	Alan Xu	Patricia Robertson	None	N/A
3	BC Hydro and Power Authority	Ming Jiang		Abstain	N/A
3	Berkshire Hathaway Energy - MidAmerican Energy Co.	Joseph Amato		Affirmative	N/A
3	Black Hills Corporation	Josh Combs		Negative	N/A
3	Bonneville Power Administration	Ron Sporseen		Abstain	N/A
3	Buckeye Power, Inc.	Carl Spaetzel	Ryan Strom	Negative	N/A
3	Central Electric Power Cooperative (Missouri)	Adam Weber		Affirmative	N/A
3	CMS Energy - Consumers Energy Company	Karl Blaszkowski		Affirmative	N/A
3	Colorado Springs Utilities	Hillary Dobson		None	N/A
3	Con Ed - Consolidated Edison Co. of New York	Peter Yost		Affirmative	N/A
3	Dominion - Dominion Virginia Power	Bill Garvey		None	N/A
3	DTE Energy - Detroit Edison Company	Marvin Johnson		Affirmative	N/A
3	Duke Energy - Florida Power Corporation	Marcelo Pesantez		Affirmative	N/A
3	Entergy	James Keele		Affirmative	N/A
3	Evergy	Marcus Moor	Alan Kloster	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Eversource Energy	Vicki O'Leary		Affirmative	N/A
3	Exelon	Kinte Whitehead		Affirmative	N/A
3	FirstEnergy - FirstEnergy Corporation	Aaron Ghodooshim		Affirmative	N/A
3	Florida Municipal Power Agency	Navid Nowakhtar	LaKenya Vannorman	None	N/A
3	Great River Energy	Michael Brytowski		Affirmative	N/A
3	Imperial Irrigation District	George Kirschner		None	N/A
3	JEA	Marilyn Williams		None	N/A
3	KAMO Electric Cooperative	Tony Gott		Affirmative	N/A
3	Lakeland Electric	Steven Marshall		None	N/A
3	Lincoln Electric System	Sam Christensen		Affirmative	N/A
3	M and A Electric Power Cooperative	Gary Dollins		Affirmative	N/A
3	Manitoba Hydro	Mike Smith		Negative	N/A
3	MGE Energy - Madison Gas and Electric Co.	Benjamin Widder		Affirmative	N/A
3	Muscatine Power and Water	Seth Shoemaker		Affirmative	N/A
3	National Grid USA	Brian Shanahan		Affirmative	N/A
3	Nebraska Public Power District	Tony Eddleman		Affirmative	N/A
3	New York Power Authority	David Rivera		Affirmative	N/A
3	NextEra Energy - Florida Power and Light Co.	Karen Demos		Abstain	N/A
3	NiSource - Northern Indiana Public Service Co.	Steven Taddeucci		Affirmative	N/A
3	North Carolina Electric Membership Corporation	Chris Dimisa	Scott Brame	Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Northeast Missouri Electric Power Cooperative	Skyler Wiegmann		None	N/A
3	NW Electric Power Cooperative, Inc.	Heath Henry		Affirmative	N/A
3	OGE Energy - Oklahoma Gas and Electric Co.	Donald Hargrove	Dane Rogers	Affirmative	N/A
3	Omaha Public Power District	David Heins		Affirmative	N/A
3	OTP - Otter Tail Power Company	Wendi Olson		Affirmative	N/A
3	Owensboro Municipal Utilities	William Berry		Abstain	N/A
3	Pacific Gas and Electric Company	Sandra Ellis	Michael Johnson	Negative	N/A
3	Platte River Power Authority	Richard Kiess		Affirmative	N/A
3	PNM Resources - Public Service Company of New Mexico	Amy Wesselkamper		Affirmative	N/A
3	PPL - Louisville Gas and Electric Co.	James Frank		Affirmative	N/A
3	Public Utility District No. 1 of Chelan County	Joyce Gundry		Affirmative	N/A
3	Sacramento Municipal Utility District	Nicole Looney	Tim Kelley	Affirmative	N/A
3	Salt River Project	Mathew Weber	Israel Perez	Affirmative	N/A
3	Santee Cooper	Vicky Budreau		Negative	N/A
3	Seminole Electric Cooperative, Inc.	Marc Sedor		Abstain	N/A
3	Sempra - San Diego Gas and Electric	Bryan Bennett		Affirmative	N/A
3	Sho-Me Power Electric Cooperative	Jarrod Murdaugh		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
3	Snohomish County PUD No. 1	Holly Chaney		Affirmative	N/A
3	Southern Company - Alabama Power Company	Joel Dembowski		Affirmative	N/A
3	Tacoma Public Utilities (Tacoma, WA)	John Nierenberg	Jennie Wike	Affirmative	N/A
3	Tennessee Valley Authority	Ian Grant		Affirmative	N/A
3	Tri-State G and T Association, Inc.	Ryan Walter		Affirmative	N/A
3	Wabash Valley Power Association	Scott Berry		Affirmative	N/A
3	WEC Energy Group, Inc.	Christine Kane		Affirmative	N/A
3	Xcel Energy, Inc.	Nicholas Friebel		Affirmative	N/A
4	Alliant Energy Corporation Services, Inc.	Larry Heckert		Affirmative	N/A
4	Arkansas Electric Cooperative Corporation	Jenni Sudduth		Abstain	N/A
4	Austin Energy	Tony Hua		Affirmative	N/A
4	Buckeye Power, Inc.	Jason Procuniar	Ryan Strom	Negative	N/A
4	CMS Energy - Consumers Energy Company	Aric Root		None	N/A
4	DTE Energy	Patricia Ireland		Affirmative	N/A
4	FirstEnergy - FirstEnergy Corporation	Mark Garza		Affirmative	N/A
4	Georgia System Operations Corporation	Katrina Lyons		Affirmative	N/A
4	North Carolina Electric Membership Corporation	Richard McCall	Scott Brame	Affirmative	N/A
4	Oklahoma Municipal Power Authority	Michael Watt		Affirmative	N/A
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
4	Public Utility District No. 2 of Grant County, Washington	Karla Weaver		Abstain	N/A
4	Sacramento Municipal Utility District	Foung Mua	Tim Kelley	Affirmative	N/A
4	Tacoma Public Utilities (Tacoma, WA)	Hien Ho	Jennie Wike	Affirmative	N/A
4	Utility Services, Inc.	Tracy MacNicoll		Affirmative	N/A
4	WEC Energy Group, Inc.	Matthew Beilfuss	Candace Morakinyo	Affirmative	N/A
5	AEP	Thomas Foltz		Affirmative	N/A
5	AES - AES Corporation	Ruchi Shah		Affirmative	N/A
5	Ameren - Ameren Missouri	Sam Dwyer		Affirmative	N/A
5	APS - Arizona Public Service Co.	Andrew Smith		Affirmative	N/A
5	Associated Electric Cooperative, Inc.	Chuck Booth		Affirmative	N/A
5	Austin Energy	Michael Dillard		Affirmative	N/A
5	Avista - Avista Corporation	Glen Farmer		Affirmative	N/A
5	Basin Electric Power Cooperative	Amanda Wangler		None	N/A
5	BC Hydro and Power Authority	Quincy Wang		Abstain	N/A
5	Berkshire Hathaway - NV Energy	Dwanique Spiller		Affirmative	N/A
5	Black Hills Corporation	Sheila Suurmeier	Carly Miller	Negative	N/A
5	Bonneville Power Administration	Pamela Van Calcar		Abstain	N/A
5	Buckeye Power, Inc.	Kevin Zemanek	Ryan Strom	Negative	N/A
5	Choctaw Generation Limited Partnership, LLLP	Rob Watson		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	CMS Energy - Consumers Energy Company	David Greyerbiehl		Affirmative	N/A
5	Colorado Springs Utilities	Jeffrey Icke		Affirmative	N/A
5	Con Ed - Consolidated Edison Co. of New York	Helen Wang		Affirmative	N/A
5	Constellation	Alison MacKellar		Affirmative	N/A
5	Cowlitz County PUD	Deanna Carlson		Affirmative	N/A
5	Dairyland Power Cooperative	Tommy Drea		Affirmative	N/A
5	Decatur Energy Center LLC	Megan Melham		Affirmative	N/A
5	Dominion - Dominion Resources, Inc.	Anna Salmon		None	N/A
5	DTE Energy - Detroit Edison Company	Mohamad Elhusseini		Affirmative	N/A
5	Duke Energy	Dale Goodwine		Affirmative	N/A
5	Enel Green Power	Natalie Johnson		None	N/A
5	Entergy - Entergy Services, Inc.	Gail Golden		None	N/A
5	Evergy	Jeremy Harris	Alan Kloster	Affirmative	N/A
5	FirstEnergy - FirstEnergy Corporation	Matthew Augustin		Affirmative	N/A
5	Florida Municipal Power Agency	Chris Gowder	LaKenya Vannorman	None	N/A
5	Great River Energy	Jacalynn Bentz		Affirmative	N/A
5	Greybeard Compliance Services, LLC	Mike Gabriel		Affirmative	N/A
5	Hydro-Quebec (HQ)	Junji Yamaguchi		Negative	N/A
5	Imperial Irrigation District	Tino Zaragoza	Denise Sanchez	Affirmative	N/A
5	JEA	John Babik		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Lakeland Electric	Carmen Rodriguez		None	N/A
5	Lincoln Electric System	Brittany Millard		Affirmative	N/A
5	Los Angeles Department of Water and Power	Glenn Barry		Abstain	N/A
5	Lower Colorado River Authority	Teresa Krabe		Affirmative	N/A
5	LS Power Development, LLC	C. A. Campbell		Affirmative	N/A
5	Muscatine Power and Water	Neal Nelson		Affirmative	N/A
5	National Grid USA	Robin Berry		Affirmative	N/A
5	NB Power Corporation - New Brunswick Power Transmission Corporation	Fon Hiew		Affirmative	N/A
5	Nebraska Public Power District	Ronald Bender		Affirmative	N/A
5	New York Power Authority	Zahid Qayyum		Affirmative	N/A
5	NiSource - Northern Indiana Public Service Co.	Kathryn Tackett		Affirmative	N/A
5	North Carolina Electric Membership Corporation	Reid Cashion	Scott Brame	Affirmative	N/A
5	NRG - NRG Energy, Inc.	Patricia Lynch		Affirmative	N/A
5	OGE Energy - Oklahoma Gas and Electric Co.	Patrick Wells		None	N/A
5	Oglethorpe Power Corporation	Donna Johnson		Affirmative	N/A
5	Omaha Public Power District	Kayleigh Wilkerson		Affirmative	N/A
5	Ontario Power Generation Inc.	Constantin Chitescu		Negative	N/A
5	Orlando Utilities Commission	Dania Colon		None	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	OTP - Otter Tail Power Company	Stacy Wahlund		Affirmative	N/A
5	Pacific Gas and Electric Company	Frank Lee	Michael Johnson	Negative	N/A
5	Pattern Operators LP	George E Brown		Affirmative	N/A
5	Platte River Power Authority	Jon Osell		Affirmative	N/A
5	PPL - Louisville Gas and Electric Co.	JULIE HOSTRANDER		Affirmative	N/A
5	PSEG Nuclear LLC	Tim Kucey		Affirmative	N/A
5	Public Utility District No. 1 of Chelan County	Rebecca Zahler		Affirmative	N/A
5	Public Utility District No. 1 of Snohomish County	Becky Burden		Affirmative	N/A
5	Public Utility District No. 2 of Grant County, Washington	Nikkee Hebdon		None	N/A
5	Sacramento Municipal Utility District	Ryder Couch	Tim Kelley	Affirmative	N/A
5	Salt River Project	Thomas Johnson	Israel Perez	Affirmative	N/A
5	Santee Cooper	Don Cribb		Negative	N/A
5	Seminole Electric Cooperative, Inc.	Melanie Wong		Abstain	N/A
5	Sempra - San Diego Gas and Electric	Jennifer Wright		Affirmative	N/A
5	Southern Company - Southern Company Generation	Leslie Burke		Affirmative	N/A
5	Tacoma Public Utilities (Tacoma, WA)	Ozan Ferrin	Jennie Wike	Affirmative	N/A
5	Talen Generation, LLC	Donald Lock		None	N/A
5	Tennessee Valley Authority	Darren Boehm		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
5	Tri-State G and T Association, Inc.	Sergio Banuelos		Affirmative	N/A
5	U.S. Bureau of Reclamation	Wendy Kalidass		Negative	N/A
5	Vistra Energy	Daniel Roethemeyer		Affirmative	N/A
5	WEC Energy Group, Inc.	Clarice Zellmer		Affirmative	N/A
5	Xcel Energy, Inc.	Gerry Huitt		Affirmative	N/A
6	AEP	Mathew Miller		Affirmative	N/A
6	Ameren - Ameren Services	Robert Quinlivan		Affirmative	N/A
6	APS - Arizona Public Service Co.	Marcus Bortman	Brandon Smith	Affirmative	N/A
6	Arkansas Electric Cooperative Corporation	Bruce Walkup		Abstain	N/A
6	Associated Electric Cooperative, Inc.	Brian Ackermann		Affirmative	N/A
6	Austin Energy	Imane Mrini		Affirmative	N/A
6	Berkshire Hathaway - PacifiCorp	Lindsay Wickizer		Affirmative	N/A
6	Black Hills Corporation	Rachel Schuldt		Negative	N/A
6	Bonneville Power Administration	Tanner Brier		Abstain	N/A
6	Cleco Corporation	Robert Hirchak		Affirmative	N/A
6	Con Ed - Consolidated Edison Co. of New York	Jason Chandler		Affirmative	N/A
6	Constellation	Kimberly Turco		Affirmative	N/A
6	Dominion - Dominion Resources, Inc.	Sean Bodkin		None	N/A
6	Duke Energy	John Sturgeon		Affirmative	N/A
6	Entergy	Julie Hall		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Evergy	Jennifer Flandermeyer	Alan Kloster	Affirmative	N/A
6	FirstEnergy - FirstEnergy Corporation	Stacey Sheehan		Affirmative	N/A
6	Imperial Irrigation District	Diana Torres	Denise Sanchez	Affirmative	N/A
6	Invenergy LLC	Colin Chilcoat		Affirmative	N/A
6	Lakeland Electric	Paul Shipps		Negative	N/A
6	Lincoln Electric System	Eric Ruskamp		Affirmative	N/A
6	Manitoba Hydro	Kelly Bertholet		Negative	N/A
6	Muscatine Power and Water	Nicholas Burns		Affirmative	N/A
6	New York Power Authority	Shelly Dineen		Affirmative	N/A
6	NextEra Energy - Florida Power and Light Co.	Justin Welty		Abstain	N/A
6	NiSource - Northern Indiana Public Service Co.	Joseph OBrien		Affirmative	N/A
6	Northern California Power Agency	Dennis Sismaet	Lauren Giordano	Negative	N/A
6	NRG - NRG Energy, Inc.	Martin Sidor		Affirmative	N/A
6	OGE Energy - Oklahoma Gas and Electric Co.	Ashley F Stringer		Affirmative	N/A
6	Omaha Public Power District	Shonda McCain		Affirmative	N/A
6	Platte River Power Authority	Sabrina Martz		Affirmative	N/A
6	Portland General Electric Co.	Stefanie Burke		None	N/A
6	Powerex Corporation	Raj Hundal		Abstain	N/A
6	PPL - Louisville Gas and Electric Co.	Linn Oelker		Affirmative	N/A
6	PSEG - PSEG Energy Resources and Trade LLC	Laura Wu		Affirmative	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
6	Public Utility District No. 1 of Chelan County	Tamarra Hardie		Affirmative	N/A
6	Public Utility District No. 2 of Grant County, Washington	Mike Stussy		None	N/A
6	Sacramento Municipal Utility District	Charles Norton	Tim Kelley	Affirmative	N/A
6	Salt River Project	Timothy Singh	Israel Perez	Affirmative	N/A
6	Santee Cooper	Marty Watson		Negative	N/A
6	Seminole Electric Cooperative, Inc.	Bret Galbraith		Abstain	N/A
6	Snohomish County PUD No. 1	John Liang		Affirmative	N/A
6	Southern Company - Southern Company Generation	Ron Carlsen		Affirmative	N/A
6	Tacoma Public Utilities (Tacoma, WA)	Terry Gifford	Jennie Wike	Affirmative	N/A
6	Tennessee Valley Authority	Armando Rodriguez		Negative	N/A
6	WEC Energy Group, Inc.	David Boeshaar		None	N/A
6	Western Area Power Administration	Jennifer Neville		Affirmative	N/A
6	Xcel Energy, Inc.	Steve Szablya		None	N/A
7	Oxy - Occidental Chemical	Venona Greaff		Affirmative	N/A
8	Florida Reliability Coordinating Council – Member Services Division	Vince Ordax		Abstain	N/A
10	Midwest Reliability Organization	Mark Flanary		Affirmative	N/A
10	New York State Reliability Council	Wesley Yeomans		Affirmative	N/A
10	Northeast Power Coordinating Council	Gerry Dunbar		Abstain	N/A

Segment	Organization	Voter	Designated Proxy	Ballot	NERC Memo
10	ReliabilityFirst	Lindsey Mannion	Stephen Whaite	Affirmative	N/A
10	SERC Reliability Corporation	Dave Krueger		Affirmative	N/A
10	Texas Reliability Entity, Inc.	Rachel Coyne		Affirmative	N/A
10	Western Electricity Coordinating Council	Steven Rueckert		Abstain	N/A

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Exhibit G

Standard Drafting Team Roster, Project 2021-07
Extreme Cold Weather Grid Operations, Preparedness, and Coordination

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Standard Drafting Team Roster

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

	Name	Entity
Chair	Kenneth Luebbert	Evergy, Inc.
Vice Chair	Matthew Harward	Southwest Power Pool, Inc.
Members	Venona Greaff	Oxy
	Derek Kassimer	ReliabilityFirst
	Jonathan Davidson	City Utilities of Springfield
	David McRee	Duke Energy
	Thor Angle	Puget Sound Energy
	Keith Smith	Orsted Onshore North American
	Chad Wiseman	Newfoundland & Labrador Hydro
	Bradley Pabian	Louisville Gas & Electric and Kentucky Utilities
	Collin Martin	Oncor Electric Delivery, LLC
	Jill Loewer	Utility Services
	David Kezell	Electric Reliability Council of Texas, Inc. (ERCOT)
	Ryan Salisbury	Oklahoma Gas & Electric
	David Deerman	Southern Company Services
PMOS Liaison	Michael Brytowski	Great River Energy
	Kirk Rosener	CPS Energy
NERC Staff	Alison Oswald – Senior Standards Developer	North American Electric Reliability Corporation

	Name	Entity
	Lauren Perotti – Legal	North American Electric Reliability Corporation

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Exhibit H

Mapping Document
Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

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Mapping Document

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Summary

This mapping document maps the recommendations from The February 2021 Cold Weather Outages in Texas and the South Central United States report (The Report) to proposed Reliability Standard EOP-012-2. This mapping document also maps how the drafting team considered FERC's directives for further revisions to Reliability Standard EOP-012-1 in its February 16, 2023 approval order[1] in proposed EOP-012-2.

Recommendation 1a

To require Generator Owners to identify cold-weather-critical components and systems for each generating unit. Cold-weather-critical components and systems are those which are susceptible to freezing or otherwise failing due to cold weather, and which could cause the unit to trip, derate, or fail to start.

Standard: EOP-012-2		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
<u>**Generator Cold Weather Critical Component**</u> - Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	<u>**Generator Cold Weather Critical Component**</u> - Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

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[1] *N. Am. Elec. Reliability Corp.*., 182 FERC ¶ 61,094 (2023) (approving Reliability Standards EOP-011-3 and EOP-012-1 and directing further revisions to EOP-012-1 and the implementation plan) ("February 2023 Order").

	associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.2** Documentation identifying the Generator Cold Weather Critical Components	**R4**. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.3** Documentation identifying Generator Cold Weather Critical Components;	The SDT maintained the language in approved EOP-012-1 R3 and moved it to R4 for Generator Owners to identify Generator Cold Weather Critical Components to meet recommendation 1a.

Recommendation 1b

To require Generator Owners to identify and implement freeze protection measures for the cold-weather-critical components and systems. The Generator Owner should consider previous freeze-related issues experienced by the generating unit, and any corrective or mitigation actions taken in response. At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
Generator Cold Weather Critical Component Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.	**Generator Cold Weather Critical Component** - Any generating unit component or system, or associated Fixed Fuel Supply Component, that is under the Generator Owner's control, and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event. This definition excludes any component or system or associated Fixed Fuel Supply Component located inside a permanent building with a heating source that regularly maintains the space at a temperature above 32 degrees Fahrenheit (0 degrees Celsius). **Fixed Fuel Supply Component** - Non-mobile equipment that supports the reliable delivery of fuel to the generating unit and under the control of the Generator Owner at a plant site. Gaseous, liquid, or solid fuel handling components that are installed on site as fixed	The SDT developed a revised definition of Cold Weather Critical Component, and a new definition of Fixed Fuel Supply Component, to help with the readability and clarity of the requirements in the standard.

	parts of the fuel delivery system that are under the Generator Owner's control are included. Mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location are excluded.	
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **3.3** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generator Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.
This requirement does not exist in the currently approved standard.	**R6.** Each Generator Owner shall, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1 and that self-commits or is required to operate at or below a temperature of 32	To meet recommendation 1b "the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary", the drafting team has

	degrees Fahrenheit (zero degrees Celsius),[2] develop a Corrective Action Plan when the generating unit experiences a Generator Cold Weather Reliability Event. The Corrective Action Plan shall be developed within 150 days or by July 1, whichever is earlier, and contain at a minimum: **6.3.** An identification of operating limitations or impacts to the cold weather preparedness plan that would apply until execution of the corrective action(s) identified in the Corrective Action Plan.	proposed R6.3. through the CAP process for Generator Owners to update the list of Generator Cold Weather Critical Components in the cold weather preparedness plan in R4.
R.1. At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning] **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.1** The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;[3]	The standard drafting team reorganized the standard to provide clarity to the applicability and requirements consistent with the FERC directives. Requirement R1 sets the stage for subsequent requirements. Requirement R1 specifies that each Generator Owner shall calculate its Extreme Cold Weather Temperature at

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[2] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

[3] Generator Owners shall include the lowest calculated Extreme Cold Weather Temperature for the unit, even where subsequent periodic re-calculations under Requirement R1 Part 1.1 cause an increase in the Extreme Cold Weather Temperature.

date and source of temperature data; and **1.2.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R3, the entity shall develop a Corrective Action Plan within six (6) months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and	**4.2** The generating unit cold weather data, as determined in Requirement R1.2; **4.3** Documentation identifying Generator Cold Weather Critical Components; **4.4** Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain); and **4.5** Annual inspection and maintenance of generating unit(s) freeze protection measures.	least once every five years, and if the recalculated temperature is now lower than what it was previously, update its plan and freeze protection measures to provide capability to operate at the new, lower temperature. This requirement addresses the last sentence of Recommendation 1b: “At an interval of time to be determined by the Balancing Authority, the Generator Owner should analyze whether the list of identified cold-weather-critical components and systems remains accurate, and whether any additional freeze protection measures are necessary.”

1.2.1.4. Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.		

Recommendation 1c

To revise EOP-011-2, R7.3.2, to require Generator Owners to account for the effects of precipitation and the accelerated cooling effect of wind when providing temperature data.

Standard: EOP-012-1		
Requirement in Approved Standard	**Revisions in Standard or Other Action**	**Description and Change Justification**
3.5.2 Generating unit(s) minimum: • Design temperature; • Historical operating temperature; or • Current cold weather performance temperature determined by an engineering analysis.	**1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the concurrent wind speed and precipitation; • Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or • Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	The SDT has proposed modifications to the existing language in EOP-012-1 R3.5.2 and moved it to R1.2.2 to account for the effects of precipitation and the cooling effects of wind when providing the generating unit minimum temperature.
R3. Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum:	**R4.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: **4.4.** Documentation of freeze protection measures implemented on Generator Cold	The SDT maintained the language in approved EOP-012-1 R3.3 and moved it to R4.4 for Generator Owners to implement appropriate freeze protection measures on Generator Cold Weather Critical Components to meet recommendation 1b.

3.3 Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components which may include measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	Weather Critical Components, which includes measures used to reduce the cooling effects of wind determined necessary by the Generator Owner to protect against heat loss, and where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain);	

FERC February 2023 Order Directives – Applicability (Paragraphs 58-60)

The Commission directed NERC to revise the applicability of the standard to ensure that it captures all BES generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions, consistent with the drafting team's stated intent. The Commission also directed NERC to revise the EOP-012-1 standard to ensure that all BES generating units are required to maintain and train on cold weather preparedness plans and maintain information regarding cold weather operating parameters consistent with EOP-011-2 Requirements R7 and R8.

The Commission deferred its decision on whether to approve the proposed effective date of EOP-011-3 until NERC submits the revised applicability section of EOP-012 to ensure all entities currently covered by the EOP-011-2 standard would remain covered under the revised EOP-012 standard.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 58: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to ensure that it captures all bulk electric system generation resources needed for reliable operation and excludes only those generation resources not relied upon during freezing conditions...NERC should ensure the modified applicability is implemented as of the effective date of Reliability Standard EOP-012-1."	**4.2. Facilities:** **4.2.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources: **4.2.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.2.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3.	The SDT determined that EOP-012-1 should mirror the existing EOP-011-2 and apply to all BES generating units in order to ensure consistency in extreme cold weather preparedness. The Applicability section first defines "generating unit" as a Bulk Electric System (BES) resource. The NERC Glossary of Terms provides the foundation for what BES resources are included in the definition (see Inclusions I2 through I4). Additionally, Blackstart Resources are also specifically declared subject to the winterization requirements. Such Blackstart Resources, consistent with the NERC

		Glossary of Terms, are those units designated in the Transmission Operator's restoration plans. Requirements for generator cold weather freeze protection measures would continue to apply only to generation that is relied upon during freezing conditions, consistent with EOP-012-1 and the recommendations of the Joint Inquiry Report. However, those limitations are identified in those specific requirements, rather than in the applicability sections of the standard.
PP 59-60: "Given the lack of clarity in the proposed applicability criteria for EOP-012-1, we are concerned that the standard could apply to significantly fewer generators than the existing Reliability Standard EOP-011-2 Requirements R7 and R8…. Furthermore, we are concerned that the proposed applicability criteria for EOP-012-1 and retirement of EOP-011-2 Requirements R7 and R8 will eliminate valuable information on cold weather preparedness of generating units that typically do not operate during the winter….	**R1.** At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s): **1.1.** Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and **1.1.1.** If the re-calculated Extreme Cold Weather Temperature is lower than the previous Extreme Cold Weather Temperature, the entity shall review and update its cold weather preparedness plan(s)	The SDT proposes a new R1 which does not have any exclusions, meaning all generating units subject to this standard under the facilities section will be subject to this requirement. For more information on applicable entities please see the write-up above.

The loss of this information concerns us as the proposed applicability of EOP-012-1 recognizes that units that do not typically run during the winter may be called upon during emergencies. We therefore direct NERC to modify EOP-012-1 to ensure that this information remains available.”	under Requirement R4 within six (6) months of the recalculation. If new corrective actions are needed to provide the required operational capability under Requirement R2 or R3, the entity shall develop a Corrective Action Plan within 6 months of the recalculation. **1.2.** Identify generating unit(s) cold weather data, to include: **1.2.1.** Generating unit(s) operating limitations in cold weather to include: **1.2.1.1.** Capability and availability; **1.2.1.2.** Fuel supply and inventory concerns; **1.2.1.3.** Fuel switching capabilities; and **1.2.1.4.** Environmental constraints. **1.2.2.** Generating unit(s) minimum: • Design temperature, and if available, the	

	concurrent wind speed and precipitation; - Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or - Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.	

FERC Order Directives - Generator Constraints to Implementing Winterization Requirements (Paragraph 66)

The Commission directed NERC to develop modifications to EOP-012-1 Requirements R1 and R7 to address concerns related to generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures. Specifically, the Commission directed NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7.

Standard: EOP-012-2		
FERC Order Directives	**Revisions in Standard or Other Action**	**Description and Change Justification**
P 66: "[W]e direct NERC…to develop and submit modifications to Reliability Standard EOP-012-1 Requirements R1 and R7 to address concerns related to the ambiguity of generator-defined declarations of technical, commercial, or operational constraints that preclude a generator owner from implementing the appropriate freeze protection measures and to ensure that the constraint declarations may not be used to opt-out of compliance with the Standard or obligations set forth in a corrective action plan. Specifically, we direct NERC to include auditable criteria on permissible constraints and to identify the appropriate entity that would receive the generator owners' constraint declarations under EOP-012-1 Requirements R1 and R7."	**Generator Cold Weather Constraint** – Any condition that would preclude a Generator Owner from implementing freeze protection measures on one or more Generator Cold Weather Critical Components using the criteria below. Freeze protection measures are not intended to be limited to optimum practices, methods, or technologies, but are also intended to include acceptable practices, methods, or technologies generally implemented by the electric industry in areas that experience similar winter climate conditions. Criteria used to determine a constraint include practices, methods, or technologies which, given the exercise of reasonable judgment in light of the facts known at the time the decision to declare the constraint was made: • Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter	The SDT proposed a new defined term, Generator Cold Weather Constraint. In developing this term, the team considered the components of the broadly used term "good utility practice" for what qualifies as a permissible constraint. Constraints generally consist of situations where there is no technological solution or the available technology is unproven, or where the solution cannot be implemented at a reasonable cost consistent with good business practices, reliability, or safety. While reliability and safety considerations are generally well understood, the team determined that additional clarification was needed in the definition regarding the reasonableness of costs. The proposed

	climate conditions to provide reasonable assurance of efficacy; - Could not have been expected to accomplish the desired result; or - Could not have been implemented at a reasonable cost consistent with good business practices, reliability, or safety. A cost may be deemed “unreasonable” when implementation of selected freeze protection measure(s) are uneconomical to the extent that they would require prohibitively expensive modifications or significant expenditures on equipment with minimal remaining life. *AND* **R8**. Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall: **8.1.** Review the Generator Cold Weather Constraint declaration at least every five years or as needed when a change of status to the Generator Cold Weather Constraint occurs; and **8.2.** Update the operating limitations associated with capability and availability	language is intended to conform the discussion of cost reasonableness with the drafting team’s original intent when drafting the EOP-012 standard; namely, that the standard be rigorous in support of cold weather reliability, but not be so overly burdensome that generators would remove their units from service during the winter months rather than comply, which in turn could make cold weather supply challenges worse. In developing this language, the drafting team considered comments on multiple drafts and believes the current approach represents a balanced consideration of the various factors raised while maintaining a high bar for cold weather reliability. The FERC order directed NERC to “identify the appropriate entity that would receive the generator owner’s constraint declarations.” The SDT believes that the intent of this language is for identified operating limitations to be provided to necessary entities who have a wide area view (i.e., Balancing Authorities or Reliability Coordinators) and are responsible for grid planning and reliability. The drafting team has

	under Requirement R1 Part R1.2 if applicable.	written Requirement R8 to require Generator Owners to update the operating limitations provided via data specification to the entities overseeing reliability (e.g., Balancing Authority, Transmission Operator, or Reliability Coordinator). In this manner, information relevant to taken constraint declarations are made available to the planning and operational entities pursuant to its data collection authority contained in TOP-003 and IRO-010. The standard drafting team understands that issues related to compliance with the standard and entity use of the constraint provisions will be addressed as part of the work plan submitted in accordance with PP94-96.

FERC Order Directives - Generator Capability Requirements (Paragraphs 89-90)

The Commission directed NERC to modify EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the standard. The Commission also directed NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 89: "[W]e direct NERC to modify the Standard to clarify Reliability Standard EOP-012-1 Requirement R1 to ensure that generators that are technically incapable of operating for 12 continuous hours (e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard."	**4.3. Facilities:** **4.3.1.** Bulk Electric System (BES) generating units. For purposes of this standard, the term "generating unit" subject to these requirements refers to the following BES resources: **4.3.1.1.** A BES generating resource identified in the BES definition, Inclusion I2 and I4; or **4.3.1.2.** A Blackstart Resource, identified in the BES definition, Inclusion I3. *AND* **R2.** Applicable to generating units with a commercial operation date on or after October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or	The SDT proposes a new facilities section with includes all BES generating units in the standard. Additionally, Requirement R2 has been modified to cover the example in the order "(e.g., solar facilities during winter months with less than 12 hours of sunlight) are not excluded from complying with the Standard." Requirement R2 provides that intermittent energy resources should have the capability to provide as much generation as operationally possible if that is less than 12 hours.

	below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[4] shall: • Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve (12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours; or • Develop a Corrective Action Plan(s) to add new or modify existing or previously planned freeze protection measures to provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature with a sustained concurrent twenty (20) mph wind speed for (i) a period of not less than twelve	

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[4] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	(12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.	
P 90: “We also find that the one-hour continuous operations requirement in Reliability Standard EOP-012-1 Requirement R2 is too short of a period to adequately meet the purpose of the Standard to ensure generating units “mitigate the reliability impacts of extreme cold weather[.]” Thus, we direct NERC to modify the one-hour continuous operations requirement of Reliability Standard EOP-012-1 Requirement R2 to better align with the stated purpose of the Reliability Standard EOP-012-1.	**R3.** Applicable to generating unit(s) in commercial operation prior to October 1, 2027: Each Generator Owner, for each generating unit that has a calculated Extreme Cold Weather Temperature at or below 32 degrees Fahrenheit (zero degrees Celsius) as determined in Requirement R1, and that self-commits or is required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius),[5] shall: • Implement freeze protection measures to protect Generator Cold Weather Critical Components that provide the capability to operate at the unit(s)' Extreme Cold Weather Temperature; or • Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to	The SDT did not intend for the requirement to be interpreted as a 1 – hour reliability requirement. As such, the 1-hour statement has been removed from the standard to make sure there is no misunderstanding.

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[5] Generating unit(s) that do not self-commit or are not required to operate at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), but may be called upon to operate in order to assist in the mitigation of BES Emergencies, Capacity Emergencies, or Energy Emergencies during periods at or below a temperature of 32 degrees Fahrenheit (zero degrees Celsius), are exempt from this requirement.

	operate at the unit(s)' Extreme Cold Weather Temperature.	

FERC Order Directives - Corrective Action Plan Deadlines (Paragraph 79)
For any requirement requiring the development of a corrective action plan to address capability or cold weather performance issues, the Commission directed NERC to include a deadline or maximum period for the completion of corrective action plan measures.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 79: "[W]e direct NERC…to modify Reliability Standard EOP-012-1 to address concerns related to the lack of an implementation timeframe for corrective action plans. Specifically, we direct NERC to include in the Standard a deadline or maximum period for the implementation completion of corrective action plans under the Standard."	**R7.** Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall: **7.1.** Include a timetable for implementing the selected corrective action(s) that shall: **7.1.1.** List the action(s) which address(es) existing equipment or freeze protection measures, if any, to be completed within 24 calendar months of completing development of the Corrective Action Plan; **7.1.2.** List the action(s) which require(s) new equipment or freeze protection measures, if any, to be completed within 48 calendar months of completing development of the Corrective Action Plan; and	The SDT proposed new Requirement R7 which includes timetables for CAP completion. These timetables are consistent with those provided for corrective actions in the TPL-007 standard.

FERC Order Directives - Implementation Plan Considerations (Paragraphs 37, 58, 88)

The Commission directed NERC to require a shorter implementation period than five years post approval, as well as a staggered implementation for unit(s) across a generator owner's fleet (e.g., 30% compliant by Year X, 60% compliant by Year Y, 100% compliant by Year Z). The Commission also directed NERC to develop standards modifications addressing standard applicability and other matters without delaying the effective date of EOP-012-1.

Standard: EOP-012-2		
FERC Order Directives	**Transition to New Standard or Other Action**	**Description and Change Justification**
P 88: "[W]e direct NERC to revise EOP-012 to require a shorter implementation period and staggered implementation for unit(s) in a generator owner's fleet… Although we are giving NERC the discretion to determine what the effective date should be shortened to, we also emphasize that industry has been aware of and alerted to the need to prepare their generating units for cold weather since at least 2011. NERC should consider the amount of time that industry has already had to implement freeze protection measures when determining the appropriate shorter implementation period."	**Compliance Date for EOP-012-2 - Requirement R3** Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.	The Commission allows NERC to propose an equally effective and efficient solution to a solution offered by the Commission to address a reliability matter. The Commission expressed concern regarding the length of the original EOP-012-1 implementation plan and identified to reduce reliability risks more quickly – a shortened plan with a staggered implementation period. The standard drafting team has determined an alternative proposal, to shorten the implementation period for winterization measures to 12 months across an entire fleet, addresses the Commission's concerns in an equally effective and efficient manner. The implementation of such measures would be subject to deadlines for Corrective

		Action Plan measures in EOP-012-2 Requirement R7. This proposal provides certainty as to the timeframes required for action, reduces reliability risks more quickly than the EOP-012-1 plan it replaces, and avoids some of the administrative burdens and uncertainties with a percent compliant implementation plan, particularly for entities with nationwide fleets or multiple NCR/MRRE registrations. Further, this approach provides entities with flexibility to implement corrective actions across their fleets in an efficient manner, such as where similar units across a fleet require similar changes. The drafting team expects that, as a practical matter, there will be some natural staggering when implementing corrective measures. The overall shortened timeframe helps ensure that the actions are completed in a more expeditious manner and more units are reliable year over year (or, when constraints are declared, the extent is fully understood) than under the original EOP-012-1 standard. Thus, the proposed approach provides an equally effective and efficient alternative to addressing the

		reliability consideration underlying the Commission's directive.
P 37: "[W]e also direct NERC to develop modifications to address the concerns regarding Requirements R1 and R7, as well as other concerns we have identified as to other aspects of Reliability Standard EOP-012-1, without delaying the effective date of Reliability Standard EOP-012-1." P 58: "…NERC should ensure the modified applicability [of the EOP-012 standard] is implemented as of the effective date of Reliability Standard EOP-012-1."		Under the proposed implementation plan, Reliability Standard EOP-012-2 would become effective on the later of: (1) October 1, 2024, which is the date EOP-012-1 is scheduled to become effective; or (2) the first day of the first calendar quarter that is three months following Commission approval. Thus, the effective date of a revised EOP-012 standard addressing the Commission's concerns would not be delayed past the effective date of EOP-012-1, so long as EOP-012-2 is approved before July 1, 2024. Any delay after that time would be modest and in the interest of providing sufficiently reasonable notice to entities of their revised obligations.