

# 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](#)<sup>1</sup> 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   |
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| <p><b><u>Generator Cold Weather Critical Component</u></b> - 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.</p> | <p><b><u>Generator Cold Weather Critical Component</u></b> - 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</p> | <p>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.</p> |

<sup>1</sup> 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”).

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|   | <p>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).</p> <p><b>Fixed Fuel Supply Component</b> - 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.</p> |   |
| <p><b>R3.</b> 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:</p> <p><b>3.2</b> Documentation identifying the Generator Cold Weather Critical Components</p> | <p><b>R4.</b> 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:</p> <p><b>4.3</b> Documentation identifying Generator Cold Weather Critical Components;</p>  | <p>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.</p> |

**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.

| <b>Standard: EOP-012-1</b>   |   |  |
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| <b>Requirement in Approved Standard</b>  | <b>Revisions in Standard or Other Action</b>  | <b>Description and Change Justification</b>  |
| <p><b><u>Generator Cold Weather Critical Component</u></b><br/>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.</p> | <p><b><u>Generator Cold Weather Critical Component</u></b> - 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).</p> <p><b><u>Fixed Fuel Supply Component</u></b> - 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</p> | <p>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.</p> |

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|   | 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.   |  |
| <p><b>R3.</b> 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:</p> <p><b>3.3</b> 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);</p> | <p><b>R4.</b> 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:</p> <p><b>4.4.</b> 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</p> | <p>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.</p>                       |
| <p>This requirement does not exist in the currently approved standard.</p>  | <p><b>R6.</b> 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</p>  | <p>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</p> |

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|  | <p>degrees Fahrenheit (zero degrees Celsius),<sup>2</sup> 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:</p> <p><b>6.3.</b> 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.</p> | <p>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.</p>  |
| <p><b>R.1.</b> 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]</p> <p><b>1.1.</b> Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation</p> | <p><b>R4.</b> 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:</p> <p><b>4.1</b> The lowest calculated Extreme Cold Weather Temperature for each unit, as determined in Requirement R1;<sup>3</sup></p>   | <p>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.</p> <p>Requirement R1 specifies that each Generator Owner shall calculate its Extreme Cold Weather Temperature at</p> |

<sup>2</sup> 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.

<sup>3</sup> 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.

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| <p>date and source of temperature data; and</p> <p><b>1.2.1.</b> 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.</p> <p><b>1.2.</b> Identify generating unit(s) cold weather data, to include:</p> <p><b>1.2.1.</b> Generating unit(s) operating limitations in cold weather to include:</p> <p><b>1.2.1.1.</b> Capability and availability;</p> <p><b>1.2.1.2.</b> Fuel supply and inventory concerns;</p> <p><b>1.2.1.3.</b> Fuel switching capabilities; and</p> | <p><b>4.2</b> The generating unit cold weather data, as determined in Requirement R1.2;</p> <p><b>4.3</b> Documentation identifying Generator Cold Weather Critical Components;</p> <p><b>4.4</b> 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</p> <p><b>4.5</b> Annual inspection and maintenance of generating unit(s) freeze protection measures.</p> | <p>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.</p> <p>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.”</p> |
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| <p><b>1.2.1.4.</b> Environmental constraints.</p> <p><b>1.2.2.</b> Generating unit(s) minimum:</p> <ul style="list-style-type: none"><li>• Design temperature, and if available, the concurrent wind speed and precipitation;</li><li>• Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or</li><li>• Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.</li></ul> |  |  |
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**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.

| <b>Standard: EOP-012-1</b>   |   |   |
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| <b>Requirement in Approved Standard</b>  | <b>Revisions in Standard or Other Action</b>  | <b>Description and Change Justification</b>   |
| <p><b>3.5.2</b> Generating unit(s) minimum:</p> <ul style="list-style-type: none"> <li>• Design temperature;</li> <li>• Historical operating temperature; or</li> <li>• Current cold weather performance temperature determined by an engineering analysis.</li> </ul> | <p><b>1.2.2.</b> Generating unit(s) minimum:</p> <ul style="list-style-type: none"> <li>• Design temperature, and if available, the concurrent wind speed and precipitation;</li> <li>• Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or</li> <li>• Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.</li> </ul> | <p>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.</p> |
| <p><b>R3.</b> 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:</p>   | <p><b>R4.</b> 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:</p> <p><b>4.4.</b> Documentation of freeze protection measures implemented on Generator Cold</p>   | <p>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.</p>          |



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| <p><b>3.3</b> 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);</p> | <p>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);</p> |  |
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**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   |  |   |
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| 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.” | <p><b>4.2. Facilities:</b></p> <p><b>4.2.1.</b> 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:</p> <p><b>4.2.1.1.</b> A BES generating resource identified in the BES definition, Inclusion I2 and I4; or</p> <p><b>4.2.1.2.</b> A Blackstart Resource, identified in the BES definition, Inclusion I3.</p> | 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 |

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|  |   | <p>Glossary of Terms, are those units designated in the Transmission Operator’s restoration plans.</p> <p>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.</p> |
| <p>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....</p> <p>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....</p> | <p><b>R1.</b> At least once every five calendar years, each Generator Owner shall, for each of its applicable generating unit(s):</p> <p><b>1.1.</b> Calculate the Extreme Cold Weather Temperature for each of its applicable unit(s) and identify the calculation date and source of temperature data; and</p> <p><b>1.1.1.</b> 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)</p> | <p>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.</p>   |

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| <p>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.”</p> | <p>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.</p> <p><b>1.2.</b> Identify generating unit(s) cold weather data, to include:</p> <p><b>1.2.1.</b> Generating unit(s) operating limitations in cold weather to include:</p> <p><b>1.2.1.1.</b> Capability and availability;</p> <p><b>1.2.1.2.</b> Fuel supply and inventory concerns;</p> <p><b>1.2.1.3.</b> Fuel switching capabilities; and</p> <p><b>1.2.1.4.</b> Environmental constraints.</p> <p><b>1.2.2.</b> Generating unit(s) minimum:</p> <ul style="list-style-type: none"> <li>• Design temperature, and if available, the</li> </ul> |  |
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|  | <p>concurrent wind speed and precipitation;</p> <ul style="list-style-type: none"><li>• Historical operating temperature at least one hour in duration, and if available, the concurrent wind speed and precipitation; or</li><li>• Current cold weather performance temperature determined by an engineering analysis, which includes the concurrent wind speed and precipitation.</li></ul> |  |
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**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  |   |  |
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| FERC Order Directives  | Revisions in Standard or Other Action   | Description and Change Justification   |
| <p>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.</p> <p>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.”</p> | <p><b>Generator Cold Weather Constraint</b> – 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.</p> <p>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:</p> <ul style="list-style-type: none"> <li>Were not broadly implemented at generating units for comparable unit types in regions that experience similar winter</li> </ul> | <p>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.</p> <p>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</p> |

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|  | <p>climate conditions to provide reasonable assurance of efficacy;</p> <ul style="list-style-type: none"> <li>• Could not have been expected to accomplish the desired result; or</li> <li>• 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.</li> </ul> <p><i>AND</i></p> <p><b>R8.</b> Each Generator Owner that creates a Generator Cold Weather Constraint declaration shall:</p> <ul style="list-style-type: none"> <li><b>8.1.</b> 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</li> <li><b>8.2.</b> Update the operating limitations associated with capability and availability</li> </ul> | <p>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.</p> <p>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</p> |
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|  | <p>under Requirement R1 Part R1.2 if applicable.</p> | <p>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.</p> <p>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.</p> |
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**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  |   |   |
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| FERC Order Directives  | Transition to New Standard or Other Action  | Description and Change Justification  |
| <p>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.”</p> | <p><b>4.3. Facilities:</b></p> <p><b>4.3.1.</b> 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:</p> <p><b>4.3.1.1.</b> A BES generating resource identified in the BES definition, Inclusion I2 and I4; or</p> <p><b>4.3.1.2.</b> A Blackstart Resource, identified in the BES definition, Inclusion I3.</p> <p><i>AND</i></p> <p><b>R2.</b> 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</p> | <p>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.</p> |

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|  | <p>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),<sup>4</sup> shall:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> </ul> |  |
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<sup>4</sup> 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.

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|  | <p>(12) continuous hours, or (ii) the maximum operational duration for intermittent energy resources if less than twelve (12) continuous hours.</p>   |  |
| <p>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.</p> | <p><b>R3.</b> 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),<sup>5</sup> shall:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Develop a Corrective Action Plan to add new or modify existing freeze protection measures to provide the capability to</li> </ul> | <p>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.</p> |

<sup>5</sup> 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.

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|  | operate at the unit(s)' Extreme Cold Weather Temperature. |  |
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**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.

| <b>Standard: EOP-012-2</b>   |   |  |
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| <b>FERC Order Directives</b>   | <b>Transition to New Standard or Other Action</b>   | <b>Description and Change Justification</b>  |
| <p>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.”</p> | <p><b>R7.</b> Each Generator Owner, for each Corrective Action Plan developed pursuant to Requirements R1, R2, R3, or R6, shall:</p> <p style="margin-left: 20px;"><b>7.1.</b> Include a timetable for implementing the selected corrective action(s) that shall:</p> <p style="margin-left: 40px;"><b>7.1.1.</b> 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;</p> <p style="margin-left: 40px;"><b>7.1.2.</b> 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</p> | <p>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.</p> |

**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   |  |  |
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| FERC Order Directives   | Transition to New Standard or Other Action   | Description and Change Justification   |
| <p>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.”</p> | <p><b>Compliance Date for EOP-012-2 - Requirement R3</b><br/>Entities shall not be required to comply with Requirement R3 until twelve (12) months after the effective date of Reliability Standard EOP-012-2.</p> | <p>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.</p> <p>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</p> |

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|  |  | <p>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.</p> <p>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</p> |
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|   |  | reliability consideration underlying the Commission’s directive.   |
| <p>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> <p>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.”</p> |  | <p>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.</p> |