

Consideration of Comments

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

Comments Received Summary

There were 108 sets of responses, including comments from approximately 249 different people from approximately 162 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, please 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, you can contact the Vice President of Engineering and Standards, [Howard Gugel](#) (via email) or at (404) 446-9693.

Consideration of Comments

The Project 2021-07 Standard Drafting Team (SDT) thanks all of industry for your time and comments. The SDT revised the proposed EOP-012-1 standard based on industry comment and the final FERC, NERC, and Regional Entity Staff Report (“Joint Report”). Due to the similar nature of multiple comments received during the initial ballot and comment period, the SDT has chosen to respond to comments in summary format as provided for by section 4.2 of the Standard Processes Manual. Comments to Question 8 were include in the responses to Question 10.

NERC Jurisdiction

The Standard Drafting Team received several comments regarding the consistency of the proposed generator freeze protection retrofit requirement in proposed EOP-012-1 with Section 215 of the Federal Power Act or NERC’s Market Principles (NERC Rules of Procedure Section 303 (Relationship between Reliability Standards and Competition), see also Market Principles). See, e.g., comments of Edison Electric Institute, Consumers Energy Company, NRG Energy, Inc., North American Generator Forum, and Dominion Resources, Inc. In response to these comments, the Standard Drafting Team states as follows:

The Project 2021-07 Standard Drafting Team has been charged with developing Reliability Standards to address the recommendations of the FERC, NERC, and Regional Entity Staff Report, *The February 2021 Cold Weather Outages in Texas and the South Central United States* (November 2021), available [here](#) (“Joint Staff Report”). One of the key recommendations of this report is for “Generator Owners to retrofit existing generating units, and when building new generating units, to operate to specific ambient temperatures and weather based on extreme temperature and weather data, and account for effects of precipitation and cooling effect of wind” (Recommendation 1f).

In developing draft Reliability Standards to address Recommendation 1f, the SDT has endeavored to draft proposed requirements that are consistent with all applicable laws, regulations, and NERC rules relating to the development of Reliability Standards. The SDT has consulted with NERC’s Legal department throughout the development of proposed EOP-012-1.

The SDT concluded, in consultation with NERC Legal, that a generator retrofit requirement is permitted so long as: (1) the requirement provides for the reliable operation of the Bulk-Power System; and (2) does not require the enlargement (i.e. growth or expansion) of existing facilities or the construction of new generation capacity. As to the first prong, a Reliability Standard requirement to retrofit existing generating facilities to meet certain cold weather operating parameters would provide for reliable operation of the bulk-power system (consistent with Recommendation 1f of the Joint Staff Report). The purpose of such a requirement is to have existing generating units produce their existing power capacity more reliably during expected cold weather conditions, thereby supporting bulk-power system reliability during such conditions. The reliability need for such a requirement is well documented in reports addressing causes and recommendations for multiple cold weather events affecting reliability, including the Joint Staff Report.

As to the second prong, NERC Legal explained that while the resulting retrofit requirement may include operational and/or design approaches for existing facilities intended to improve cold weather reliability, it may not expressly (nor implicitly) call for either the expansion of existing facilities (such as by requiring an increase in nameplate capacity) or the construction of new generation capacity. Section 215 of the Federal Power Act expressly permits operational and design requirements in Reliability Standards to provide for reliable operation; the statute only excludes requirements that require the expansion of existing facilities (such as by requiring an increase in nameplate capacity) or the construction of new generation capacity, because those are matters Congress determined to leave to the states. Therefore, a retrofit requirement respecting these exclusions would appear to be permitted under the plain meaning of the statute.

The fact that there may be more of the existing generation capacity available during cold weather conditions because those generators would not be not forced off-line due to freezing issues should not alter this conclusion. A requirement that would have the effect of decreasing the percentage of existing generation capacity forced off-line due to freezing and therefore increasing the percentage of existing generation capacity that would be available to support reliability is not the same as a requirement to expand or construct new capacity.

The SDT has reviewed with NERC Legal the comment asserting that Section 215 of the Federal Power Act does not permit requirements for the design of “unplanned modifications” to facilities. NERC Legal explained that such an interpretation does not appear to reflect the plain words of the statute, nor does it comport with the overall framework of Section 215. NERC Legal explained that Congress granted broad reliability authority to FERC and the Electric Reliability Organization (i.e. NERC). The statutory exclusions to the ERO’s authority are few and specific: Reliability Standards may not include requirements to enlarge existing facilities or construct new capacity. Outside of these exclusions, nothing in the statute prohibits Reliability Standards from requiring entities to make modifications, or plan to make modifications, that would promote the reliable operation of the BPS.

With respect to the question regarding permissibility of a generator retrofit requirement under the Market Principles, the SDT, in consultation with NERC Legal, has not identified any specific concern or impact on competition that would contravene NERC's Market Principles.

The proposed retrofit requirement would be generally applicable and unlikely to result in an unfair competitive advantage for any individual or group of participants. Commenters suggest that the proposed requirement would benefit the group of participants that could pass on the increased costs to ratepayers, but the commenters fail to explain how the availability of cost recovery would result in an unfair competitive advantage. Additionally, the proposed retrofit requirement would not mandate or prohibit a market structure, require disclosure of competitively sensitive information, or define an adequate amount or require expansion/enlargement of generation capacity. As noted above, a requirement that would have the effect of decreasing the percentage of existing generation capacity forced off-line due to freezing and therefore increasing the percentage of existing generation capacity that would be available to support reliability is not legally equivalent to a requirement to expand or construct new capacity.

The SDT is currently pursuing a Corrective Action Plan (CAP) approach to addressing Recommendation 1f of the Joint Staff Report regarding retrofitting. Under this approach, Generator Owners that opt to participate in the markets during the winter months would develop a CAP if they are unable to operate in accordance with the cold weather performance requirements of the standard. Such CAPs shall include corrective actions chosen by the Generator Owner to address identified issues, along with associated timetables for completion. If corrective actions will not be implemented under requirement R1 and R2 due to technical, commercial, or operational constraints, the Generator Owner shall explain as such in a declaration. While NERC Legal has advised that the SDT has flexibility under Section 215 of the Federal Power Act to consider any number of approaches to addressing Recommendation 1f, the SDT notes that a results-based CAP approach has been successfully used in other Reliability Standards found to be consistent with the requirements of Section 215 of the Federal Power Act and NERC's rules regarding Reliability Standards and approved by FERC (e.g., PRC-004-6, PRC-026-1).

As discussed below, the SDT has revised the proposed standard in response to comments and welcomes further comments on the revisions as it works to develop a consensus-based approach to the recommendations of the Joint Staff Report.

Market Rules/Cost Recovery

A few responses expressed thoughts that no new/additional cold weather standards should be implemented until Market rules addressing cold weather related BES emergencies are established by NERC.

Most commenters referenced Key Recommendation 2 which states, "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 (or designing any new units they may build) through markets or through cost recovery approved by state public utility commissions (e.g., as a reliability surcharge) to be included in end users' service rates. The applicable ISOs/RTOs (market operators) and/or public utility commissions should identify how best to ensure Generator Owners have the opportunity to be

compensated for making these infrastructure investments.” As the ERO, NERC is responsible for the development of Reliability Standards to provide for the reliable operation of the Bulk-Power system. The SDT has been charged with developing Reliability Standards to address the standards-related recommendations from the FERC/ERO Enterprise Joint Staff Inquiry Report. In response to comments, the SDT has revised draft EOP-012-1 to better account for industry concerns. The SDT has also drafted requirements that do not discriminate against any type of generator of market type. The market-related recommendations from the Joint Staff Report, such as generator cost recovery, are outside the scope of this project. As referenced within Key Recommendation 2, the SDT urges commenters to work with their applicable market operators and/or PUC to identify potential avenues for compensation. The SDT will pass the concerns to NERC Management.

Definitions

Extreme Cold Weather Temperature

The starting date chosen by the SDT to gather data to determine the lowest temperature that occurred 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. Therefore, the SDT adjusted the starting date from 1/1/1975 to 1/1/2000. In general, the National Weather Service modernization provided 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 analysis needed as stated in the requirement. With the adjustment of the date, the SDT also recognized that instead of picking the lowest temperature seen by a facility it would be to the best interest of the industry to use a percentile methodology in determining the appropriate temperature. After reviewing datasets from those members on the SDT, it was agreed that the temperature to be used would be determined on the lowest 0.2 percentile temperature from the dataset. 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 Generator Owner to have previously demonstrated successful operation. The SDT is working on a document detailing step by step instructions for obtaining cold weather temperatures and calculating the 0.2 percentile temperature for a site.

Generator Cold Weather Critical Component

Based on industry concerns, the SDT felt that clarity around the scope of the application of freeze protection measures was warranted for both existing and new generating units. The most feasible approach presented itself in the form of a new defined term. The foundation for the definition is based on the ERO Enterprise Reliability Guideline Generating Unit Winter Weather Readiness – Current Industry Practices. This guideline provides a reference for GOs with some examples to consider. Entities should review their plant design and configuration, identify areas with potential exposure to the elements, ambient temperatures, or both and tailor their freeze protection measures accordingly. Based on this guideline and previous cold weather events, a typical subset of problem areas include:

- Level transmitters
 - Drum level transmitters and sensing lines
 - Condensate tank level transmitters and sensing lines

- De-aerator tank level transmitters and sensing lines
- Hotwell level transmitters and sensing lines
- Fuel oil tank level transmitters / indicators
- Pressure Transmitters
 - Gas turbine combustor pressure transmitters and sensing lines
 - Feed water pump pressure transmitters and sensing lines
 - Condensate pump pressure transmitters and sensing lines
 - Steam pressure transmitters and sensing lines
- Flow Transmitters
 - Steam flow transmitters and sensing lines
 - Feed water pump flow transmitters and sensing lines
 - High pressure steam at temperator flow transmitters and sensing lines
- Instrument Air System
- Motor-Operated Valves, Valve Positioners, and Solenoid Valves
- Drain Lines, Steam Vents, and Intake Screens

The other part of the definition limits the list to those components, elements, or pieces of equipment that if lost could result in the generating unit experiencing a (1) 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. Additionally, the Public Utility Commission of Texas (PUCT) implemented a similar definition providing a successful example. The elements applicable to GOs in the PUCT definition were used in this proposed definition as a starting point and to ensure a conflict does not exist. This definition is the first step in the process to address recommendations 1a and 1b from the Joint Staff Report.

Cold Weather Reliability Event

Key recommendation 1d from the report recommends a standard that requires Generator Owners to develop a CAP for generating units that experience outages, failures to starts, or derates due to freezing. The 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 report). As such, the team followed the Report recommendation to require a CAP when the apparent cause of the event is freezing. The Project 2021-07 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 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 Generator

Owner). 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.

Applicable Facilities

Multiple comments asked the SDT to refine and clarify the exception criteria for generating units that would not operate in Extreme Cold Weather (and thus not be required to implement Cold Weather freeze protection measures), the continued exemption if a BES generating were called upon by the respective BA to operate in an emergency or that “Summer peaking” BES generator were defined in other NERC standards.

With Industry’s responses in mind, the SDT edited section 4.2 Facilities to delineate the criteria for exempting BES Generating units from implementing measure requirements of EOP-012-1. The revised applicability definition includes all BES units committed or obligated to serve a Balancing Authority load pursuant to an OATT or other contractual arrangement, unless they are typically not available at or below thirty-two (32) degrees Fahrenheit (zero degrees C) for more than four hours. These generators would remain exempted if they were called upon by the respective BA to operate during BES Emergencies, Capacity Emergencies or Energy Emergencies, even if below 32 degrees Fahrenheit. The SDT made clear that all Blackstart Resource are included and not exempted.

The majority of commenters favored the Balancing Authority as the entity to determine the “winter season;” however, multiple comments questioned the need to define “winter weather.”

After discussion, the drafting team determined that the function of the Facilities section warranted removal of the Balancing Authority’s determination of the winter season for its area. First, multiple comments pointed out that the inclusion of that provision in the Facilities section created an obligation on the Balancing Authority without a requirement, as the Balancing Authority is not a functional entity identified in EOP-12. Further, due to the vast diversity of geography in the footprint, defining a winter season within even a single Balancing Authority with a large footprint could be challenging. Finally, commenters stressed that the Facilities section should be clarified to state which type of generating unit falls under the requirements and which units are exempted. These and related comments made compelling arguments that favored revising the Facilities section to be more consistent with the section’s purpose. Therefore, the drafting team is proposing to eliminate the provision that requires the Balancing Authority to determine the winter season; and includes new language focused on what generating units are subject to the standards, and clearly identifying which generating units fit the narrow exemption provided by FERC.

Multiple comments expressed the thought that no BES generator should be exempted for extreme cold weather operating requirements of EOP-012-1 as this would inevitably result in similar BES emergencies as experienced over the previous decade.

The SDT feels that it is not realistic to mandate a BES generating unit that was never designed/intended to operate in freezing conditions, and/or cannot obtain fuel to operate during the winter time frame to comply with EOP-012-1 freeze protection requirements.

Additional responses provided example language for the definition of “Generating Unit,” 2 responses asked for clarification of “Generating Unit,” and 2 responses expressed thoughts that EOP-012 should

only apply to units that operate in the “winter market.”

With Industry’s responses in mind, the SDT edited section 4.2 Facilities to clarify in the simplest manner possible which BES generating units are to comply with NERC standard EOP-012.

One commenter observes that different definitions of the same term are likely to cause confusion, especially in areas where a single entity has facilities under the jurisdiction of multiple BAs. The suggestion was made that instead of defining “winter season” as a time period, the standard should direct entities to begin cold weather preparations when temperatures decrease toward 40 degrees and to implement preparations as temperatures decrease toward 30 degrees.

Thank you for your comments. The team discussed multiple ways to revise the Facilities section to focus more on generating unit applicability rather than defining cold weather. The drafting team decided to not dictate the timeframe for when to begin cold weather preparations or when to implement the cold weather preparedness plan. The current proposal is to key on units that will operate at freezing conditions and below.

Two comments were received stating there could be potential for disagreement over what constitutes a “plan” to operate and that EOP-012-1 Section 4.2 could be revised to include communication of the GO’s plan to its BA.

The drafting team appreciates the ambiguities associated with the simple verbiage of “plan to operate.” Please see the revisions being proposed that clarify that subject generating units are those that are committed or obligated to serve load in a Balancing Authority pursuant to an OATT or contractual arrangement.

One commenter stated the terminology for winter season is widely used for Facility Ratings, System Operating Limits, and Planning purposes. To avoid possible confusion, some consideration might be given to allowing the PC or RC to make this determination which could allow for consistent terminology between cold weather operations and planning activities. Another consideration is whether it is appropriate to allow a Generator Only BA to establish the winter season for the benefit of its own generation. Another alternative or additional language might include a requirement that the BA determine and identify the “winter season” criteria, make formal declarations of the seasonal status, and communicate those to the GO/GOP.

The drafting team agrees with many of your points regarding the interests of the PC and RC in the determination of the winter season, and the potential issues with allowing Generator only BAs to determine the season for itself. As a result, the drafting team has decided to not define winter season within the standard. Please see the proposed changes focusing on generating unit inclusion and limited exclusions as a means to determine applicability.

Multiple comments indicated the need for the EOP-012 standard to apply to summer emergencies, in addition to winter operation.

The SDT remains focused on extreme cold weather operation, as defined by the SAR for Project 2021-07.

EOP-012-1 Requirement Language

Comments were received stating that the application of EOP-012-1 is too broad and should apply differently based upon climate zones or historical cold weather generator performance.

The SDT has considered the climate where generating facilities are located as evidenced with the Extreme Cold Weather Temperature definition. Regardless of historical performance, the SDT believes the requirements within EOP-012-1 will promote reliable operation during extreme cold weather in the future.

A comment recommended modifying the verbiage in Requirement Parts 1.4.4 and 6.2.6 from “a declaration” to “Documentation, where deemed appropriate by the Generator Owner based on the review of Parts 1.4.1 through 1.4.3, that no revisions to the cold weather preparedness plan(s) are required...”. Additionally, it is recommended that this information be submitted to the BA so the BA is aware of the generating units within its footprint.

The SDT believes the verbiage within the Measures for the Requirements that allow a declaration to be sufficient. Additionally, the SDT believes requiring additional submittals to the BA to be an administrative burden.

Multiple comments expressed that the requirement to implement new or modify existing freeze protection measures to continuously withstand the temperature represented by the single coldest hour since 1/1/1975 was inappropriately conservative.

The SDT understands this concern and is now proposing 1) the new statistically defined term “Extreme Cold Weather Temperature” utilizing local publicly available weather data, 2) a shortened lookback time period to 1/1/2000, and 3) a 12-hour minimum period for new facilities to withstand the Extreme Cold Weather Temperature. The Extreme Cold Weather Temperature represents the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February only back to 1/1/2000. The SDT believes this statistical approach addresses the geographical climate diversity experienced across North America and will not require burdensome retrofits for locations that rarely, if ever, experience freezing conditions for significant periods of time. The edits to the standard also eliminated the requirement to run indefinitely at the extreme low temperature condition and instead require the capability to run for a defined period. For generating units with a COD after the effective date of EOP-012-1, that period is 12 hours. For generating units already in commercial operation, that defined period is 1 hour.

Several comments expressed concern about ambiguity regarding the cooling effects of wind and precipitation.

To take the cooling effect of wind into consideration for new plants, a relatively common windspeed of 20 mph is to be assumed to occur concurrent with the Extreme Cold Weather Temperature for exposed Generator Cold Weather Critical Components. The SDT recognizes that higher and lower windspeeds can and will occur and that winds typically vary in intensity over a 12-hour period. Nevertheless, requiring protection against the heat removing effect of a constant 20 mph wind over such a period provides a strong, yet realistic freeze protection standard.

For existing plants, the cooling effects of wind are to be taken into consideration in the cold weather preparedness plans as determined necessary by the Generator Owner. All units should protect Generator Cold Weather Critical Components from precipitation as appropriate for the specific components in the local climate. The SDT believes this approach appropriately addresses the geographical climate diversity experienced across North America.

Another common comment was that retrofitting existing units to the same standards as new units would be costly and difficult to implement and result in marginal benefit for the existing, and largely already freeze-protected, generating units.

The SDT recognized the need to balance the new vs. existing requirements and drafted R1 for new generating units and R2 for existing generating units to account for those differences. These changes include modifying the minimum duration generating units should be capable of running at the Extreme Cold Weather Temperature. For generating units with a COD after the effective date of EOP-012, that period is 12 hours. For generating units already in commercial operation, that defined period is 1 hour.

Several comments expressed concerns regarding the use of the word “design”.

The SDT resolved this concern by removing references that could be construed as requiring re-design of existing systems and instead utilized a performance or capability-based language in the requirements.

Some comments expressed concerns that one standard being applied to different types of generation units in widely varying climatological conditions could be inefficient or burdensome.

The SDT believes that the revised structure and requirements of the standard adequately consider the varying conditions in places from south Florida to northern Canada to the Imperial Valley of southern California. Utilizing the location-specific, statistically derived Extreme Cold Weather Temperature definition along with limited durations that extreme cold must be withstood results in a standard that will deliver additional reliability where most needed while requiring little or no physical modifications for generating units that have already been adequately equipped with freeze protection measures.

Multiple comments report concern that the requirement for continuous operation is too burdensome.

The SDT understands industry’s concern and around continuous operation and is now proposing changes modifying the minimum duration generating units should be capable of running at the Extreme Cold Weather Temperature. For generating units with a COD after the effective date of EOP-012, that period is 12 hours. For generating units already in commercial operation, that defined period is 1 hour.

Multiple comments recommended combining R2 with R1 and extending to all generators, or combining R4 with R2.

R1 and R2 were rewritten to provide a similar compliance path for generating units built prior to the standard as well as new generating units. And R2 and R4 have been revised and reworded to identify work that is required upfront versus periodic review requirements.

Comments also asked for consideration of an exemption for generators with a proven history of cold weather performance.

Requirement R2 now allows GOs to take credit for historical performance in cold weather, but does not go so far as to provide an exemption altogether. The SDT selected the 0.2 percentile of winter month temperatures since 1/1/2000 to identify an extreme cold temperature which has rarely been surpassed, but which allows some margin for a Generator Owner to have previously demonstrated successful operation at that temperature. The SDT has reviewed a sample set of generating units and determined

that units with a history of operating well during cold weather should be able to prove compliance to Requirement R2 by providing historical performance data.

Multiple comments expressed that GOs should not be given a separate requirement that allows them to, in perpetuity, have the ability to not meet the freeze protections measures set in EOP-012.

The proposed EOP-012 standard has been significantly updated after the first ballot to address concerns surrounding exceptions and the differences in handling new units versus existing units. The SDT believes we have provided reasonable compromises that will enhance cold weather reliability without placing onerous and costly burdens on GOs.

One comment suggested replacement of “commercial, or operations constraints” with “regulatory constraints” while other commenters expressed concerns that the “commercial operation constraint” option in the declaration renders the entire Standard moot for anyone who chooses not to spend money to implement freeze protection measures.

The SDT believes commercial (e.g., a unit is due to be retired soon) and operational (e.g., a unit is unable to obtain an outage in a timely manner) to be valid constraints and allow for GO’s to have flexibility around performing CAPs. It is not the intention of this Reliability Standard or the SDT to provide an avenue for GOs to opt out at will. The SDT was presented with real world examples of situations where commercial constraints exist (i.e., units designated for retirement) for whom it is not commercially feasible to upgrade existing freeze protection measures. The SDT discussed “commercial constraints” at length and is expressing confidence in the integrity of applicable GOs to make appropriate decisions regarding declarations of commercial constraints. The inclusion of commercial constraints was primarily driven by concerns regarding decreased system reliability resulting from new regulations have the potential to drive premature retirements of generating unit(s) that otherwise would have continued operating.

A comment expressed concern that there is no ending timeframe for Corrective Action Plans.

The SDT believes the timeframe is inherent in the NERC Glossary of Terms definition of CAP as it is defined as, “A list of actions and an associated timetable for implementation to remedy a specific problem.” It is anticipated that Generator Operators will complete corrective actions as soon as practicable. The SDT recognizes that many variables influence timetables and felt it was not necessary to establish a hard deadline for the completion of corrective actions.

Some comments expressed concerns that EOP-012 made no mention of start-up capability.

The modifications to the proposed EOP-012 standard include start-up capability in the new Generator Cold Weather Reliability Event definition. The SDT believes this addresses industry concerns that this issue, as stated in the Joint Report, was missing from the standard.

Some commenters expressed concern that the first draft was unclear and confusing due to disorganization and grammar.

The SDT believes that the revised structure and requirements of the standard adequately address this concern.

One commenter asked that the training requirement not be limited to maintenance or operations personnel.

The SDT attempted, where appropriate, to not modify language previously approved by industry. The only change to the training requirement was to add the word annual. As with all Reliability Standards, this is the minimum requirement. An entity is free to expand their training audience as they deem necessary to ensure the reliable operation of their generating unit(s).

Several commenters expressed concern with the lack of deadline for development of a Corrective Action Plan (CAP).

The SDT believes that the revisions to the CAP requirements under R6 address this issue using language similar to PRC-004 which also requires a CAP and is already in effect in an enforceable Reliability Standard.

Several commenters expressed concerns with open interpretation of the applicability of “freezing”.

With the development of the defined term Generator Cold Weather Critical Component, the SDT believes clarity is provided on what should be protected in order to mitigate the chance of a significant derate, a forced outage, or a failure to start. The application of freeze protection measures to the Generator Cold Weather Critical Components narrows the focus and scope to the applicable equipment, components, and systems.

Some commenters felt that the Standard should be part of a regional variance for those regions that see sub-freezing temperatures as part of a normal winter.

The SDT believes that the revised structure and requirements of the standard adequately consider the varying conditions in places from south Florida to northern Canada to the Imperial Valley of southern California. Utilizing the location-specific, statistically derived Extreme Cold Weather Temperature definition along with limited durations that extreme cold must be withstood results in a standard that will deliver additional reliability where most needed while requiring little or no physical modifications for generating units that have already been adequately equipped with freeze protection measures.

Data Submittal and Additional Communication Requirements

The team appreciated the feedback regarding which section of the ROP a data submittal best fits. The team will be discussing in Phase 2 the recommendations for improved communication between registered entities. The team believes these two issues are joined together and will continue the discussion of an ERO data submittal in conjunction with the phase 2 recommendations. Therefore, the data submittal element to track progress over the implementation period is not included in this ballot.

- **Multiple comments stated Interconnection studies should include provisions to meet this standard.**

There is nothing in this standard that would prevent an interconnection study from including provisions to meet this standard.

- **Multiple comments inquired who should receive declarations of constraints or CAPs, and suggested requirements that these documents be shared with the BA. Other comments suggested extending the five-year review period to a longer duration.**

The SDT views the declarations and CAPs as compliance documents that can be shared as communication tools but are not required to be turned over to other entities. After review, the SDT team believes that a five-year review period is sufficient to meet needs. CAPs can be generated, but do not have to be completed in the five-year timeframe.

Cost Effectiveness of EOP-011-3 and EOP-012-1

Most commenters did not agree that the key recommendations in The Report were being met in a cost-effective manner

Commenters were concerned that without cost recovery or compensation in place, actions taken to meet the requirements could not be done in a cost-effective manner. These concerns are addressed in both the Market Rules/Principles and Cost Recovery portions of this document. It should also be noted that within EOP-012-1, the SDT developed language to allow Generator Owners to declare any technical, commercial, or operational constraints where appropriate. The SDT believes this language allows the requirements to be met in a cost-effective manner.

Multiple comments were received concerning potential administrative burden associated with EOP-012-1.

Most commenters were concerned around the potential administrative burden in two areas. First, commenters believed documenting the minimum hourly temperature since 1975 would be too onerous. Second, for smaller units such as wind turbine generators, analyzing possible freezing events for potential CAPs would be overly burdensome. These concerns have been alleviated by the revised language of the requirements. Historical temperature data going back to 1975 is no longer necessary as defined within Extreme Cold Weather Temperature. Additionally, EOP-012-1 Requirement 6 added criteria that the forced derate exceeds 20 MWs before actions are required.

UFLS/UVLS in EOP-011-3

Concerns were raised that the TOP does not have sufficient data to minimize overlap manual load shed circuits with UFLS circuits because the Planning Coordinator is not required to provide UFLS database data to the TOP. EOP-011-3 passed ballot and will not be re-balloted during this draft.

The SDT notes that PRC-010-2 R8 already contains language that should accommodate any TOP's need for additional information about UFLS, UVLS, manual load shed, and critical load circuits. Specifically, "...and other functional entities with a reliability need.", therefore the SDT decided to not make any modifications to PRC-010 at this time.

Multiple responses support review of PRC-006-5 and PRC-010 during next logical review cycle.

The SDT will pass along the suggestion to modify PRC-006-5 R7 to include a Requirement that Planning Coordinators shall provide UFLS and/or UVLS (as applicable) program database data to Transmission Operator's upon request, to NERC, so that the next time that this Standard comes forward for periodic review, this Requirement modification will be considered.

Comments were received that stated TOPs that are not also DPs need method to obtain UFLS, UVLS, manual load shed, and critical load data from DPs.

Whereas some TOPs may require additional UFLS, UVLS, manual load shed, and critical load circuit information from DPs, UFLS-only DPs, or TOs, the SDT noted the TOP data specification required in TOP-003-3 provides a mechanism for the TOP to request this data and a requirement for these entities to provide the requested data to the TOP. This aligns with the Standard Efficiency Review efforts to not add additional administrative Requirements.

Suggestions were made to add DP, UFLS-only DP, and TO to applicability section of EOP-011 to highlight importance of coordination between TOP and these registered entities.

The SDT will consider adding functional registrations (e.g. DP, UFLS-only DP, TO) to EOP-011 in Phase 2 of the project. The SDT notes that these changes may be needed when addressing Key Recommendation 1i (from the FERC/NERC joint report on the February 2021 cold weather event), which will deal with critical natural gas infrastructure.

A comment was received stating that it is difficult to avoid overlap between manual load shed circuits and circuits that are utilized for UFLS/UVLS.

As discussed in the Technical Rationale for EOP-011-3, the SDT elected to keep the phrase “minimize the overlap” instead of moving to language that specifically requires the separation of circuits. This decision was made in recognition of the fact that it is not always practical or warranted to completely separate circuits used for each of these purposes. EOP-011-3 R1 1.2.5.4 does not prohibit the utilization of UFLS or UVLS circuits for manual load shed but rather states that this should be limited to situations where warranted by system conditions.

A comment was received stating that the changes in EOP-011-3 should not be applicable continent-wide.

The SDT has determined that the changes in EOP-011-3 should be applicable regardless of geographic location because they are foundational to certain components of Transmission Operator’s Operating Plans which are used to respond to many different types of system conditions.

A comment was received stating that it is not appropriate to require the minimization of overlap between circuits used for manual load shed and circuits used for UFLS/UVLS because a manual load shed event is not a “frequency sensitive event.”

The SDT disagrees with the concept of manual load shed not being a “frequency sensitive event.” The SDT agrees with the Final Report, and previous revisions of EOP-011, in that it is important to minimize the overlap of circuits used for manual load shed and circuits used for UFLS/UVLS. The integrity of UFLS programs should be prioritized at all times since sudden changes to frequency can occur at any time and arguably are more likely to occur during a short-supply situation when generation reserves are minimal.

Additional EOP-011-3 Concerns

One commenter seeks clarity on why the title of EOP-011 is being changed to the term preparedness. EOP-011 still contains a preparedness aspect and the planning horizons are still being used in the requirements.

The SDT believes after moving EOP-011-2 Requirements 7 and 8 to EOP-012-1, it would be clearer for only EOP-012-1 to include 'Preparedness' within the title of the standard.

Implementation Time Frame

The SDT has reviewed the comments received from the Industry on the Implementation Plan suggested for the new EOP-012-1.

Most commenters believed that the implementation plan suggested by the SDT was achievable. Those that responded No, believed that the timeframe to implement was too short and the industry needs more time than what was proposed. The SDT made revisions to the proposed EOP-012-1 based on industry feedback received in other questions.

Based on the changes made to the standard, and since the majority of commenters were in agreement with the proposed timeframe from the first draft of EOP-012-1, and that work that is currently being done to implement EOP-011-2, the timeframe for the implementation of EOP-012 will remain as proposed with one modification at the five-year review as stated in R4 will have a 78-month implementation timeframe.

Comments were received stating that the implementation timeline did not provide adequate time for EOP-012-1 Requirements 1 and 2.

The SDT believes the implementation plan provides adequate time to comply with the requirements and is in alignment with previous Reliability Standard implementation plans.

Multiple commenters asked for clarity on when is a generator new and when is it existing during the implementation period.

This distinction has been clarified by the SDT in the latest draft. Generators that come into service after the implementation date of requirement R1 of the standard are considered "new" for the purposes of this standard.