Unofficial Comment Form

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

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** by **8 p.m. Eastern, June 17, 2022.**

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

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 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.

Questions

1. The SDT revised EOP-011-3 requirements R1 and R2 for the TOP to minimize the overlap of UFLS and UVLS circuits from those used for manual load shed or those that serve critical loads. Should PRC-006-5 Requirement R7 and PRC-010-2 Requirement R8 also be modified to include a Requirement that Planning Coordinators shall provide UFLS and/or UVLS (as applicable) program database data to Transmission Operator's upon request, in order to ensure that all TOPs have the necessary data to minimize the overlap of circuits as required in the newly proposed EOP-011-3 Requirement R1.2.5.3? Please provide any explanation with your response.

☒ Yes

☐ No

Comments:

In addition to revising PRC-006 and PRC-010, RSC requests that the Standard Drafting Team revise EOP-011 with due consideration to areas of the ERO Enterprise for which the Transmission Operator does not serve as a Distribution Provider nor UFLS-Only Distribution Provider. For example, in NPCC, there are transmission-only TOP registered entities. These TOPs serve DP and UFLS-Only DP registered entities, which have operational responsibility for both the sub-transmission and distribution system.

As defined in the Joint Inquiry Report (and is the practice in some parts of NPCC), "Load Shed" is "the reduction of electrical system load or demand by interrupting the load flow to major customers and/or **distribution circuits**, normally in response to system or area capacity shortages or voltage control considerations" (emphasis added).

Thus, in the event of an Emergency, transmission-only TOPs would rely upon DP and UFLS-Only DP entities to (1) implement manual Load shedding in a timeframe adequate for mitigating the Emergency, (2) minimize the overlap of circuits that are designated for manual Load shed and circuits that serve designated critical loads, (3) minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for underfrequency load shed (UFLS) or undervoltage load shed (UVLS), and (4) limit the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions.

As written, however, EOP-011 has the unintended consequence of requiring transmission-only TOPs to implement provisions that, in fact, Distribution Providers and UFLS-Only Distribution Providers are required to perform in order to mitigate operating Emergencies. A targeted approach to allow TOPs to identify, as necessary, DP and UFLS-Only DP entities that are required to mitigate operating Emergencies in a TOP's Transmission Operator Area is therefore warranted. For the SDT's reference, NERC Standard EOP-005-3 provides an illustrative example of a targeted approach for TOPs to both identify DPs and assign responsibilities to DPs based on need.

Given the reasons stated, RSC requests the following three (3) modifications to EOP-011:

1. Add Distribution Provider and UFLS-Only Distribution Provider to the applicability section:
   a. "**4.1.4.** Distribution Provider identified in the Transmission Operators Operating Plan to mitigate operating Emergencies"
   b. "**4.1.5.** UFLS-Only Distribution Provider identified in the Transmission Operators Operating Plan to mitigate operating Emergencies"

2. Add Requirement R1.2.5.5., stating:
   a. "**R1.2.5.5.** Provisions for identifying Distribution Providers and UFLS-Only Distribution Providers required to mitigate operating Emergencies in its Transmission Operator Area."

3. Add a new Requirement R6, stating:

R6. Each Distribution Provider and UFLS-Only Distribution Provider identified in the Transmission Operators Operating Plan(s) as required to mitigate operating Emergencies in its Transmission Operator Area shall implement the following, as applicable: [Violation Risk Factor: High] [Time Horizon: Real-Time Operations]

6.1. Operator-controlled manual load shedding during an Emergency that accounts for each of the following:

6.1.1. Provisions for manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;

6.1.2. Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that serve designated critical loads;

6.1.3. Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for underfrequency load shed (UFLS) or undervoltage load shed (UVLS); and

Provisions for limiting the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions.

Additional information is required for a better assessment:

add clarification regarding overlap – physical versus frequency domain action overlap

Additional clarification is required regarding when manual load shedding is permitted for the load connected to a feeder part of the UFLS program (extra load margin required with respect to the minimum amount of load accounted for in the UFLS program)

Manual load shedding shall only be allowed to disconnect the critical load for a period of time that is less than the critical load outage withstand time, without having a negative impact.

Similar to the UFLS program it is the time to have a dynamic approach to the critical loads; they should be treated differently based on the assigned priority and the specifics of the load shedding event in terms of extent, duration, and weather condition/season.

2. Should the BA be the entity to determine the "winter season", which is used to define applicable generating units in proposed EOP-012-1 Section 4.2 Facilities? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.
   ☐ Yes
   ☒ No

   Comments:
   How is the BA held responsible for determining what is considered the "winter season"? EOP-012-1 section 4.2 lacks clarity and there are no requirements concerning this responsibility, nor is it mentioned in the TR.

   Local BA to provide the "winter season"
   It is not the winter season that determines the applicability to Facilities (generating units), but rather the potential for localized extreme weather conditions.

3. The SDT proposes to include as applicable Facilities in EOP-012-1 only those generating units that operate during the winter weather season, while exempting those units utilized for summer peaking purposes only (and without penalizing such units that may be called upon by the BA during winter weather in response to energy emergencies). Do you agree with the applicability of EOP-012-1 as drafted? If you do not agree, please provide recommended language for how to address from the standard's applicability consistent with the recommendations of The Report.
   ☒ Yes
   ☐ No

   Comments:

   RSC requests that the SDT consider Emergencies in the summer weather season that may warrant protection.

4. Does the proposed language in EOP-012-1 requirement R1 that require existing units to implement new freeze protection measures or modification of existing freeze protection measures, raise any stakeholder concerns? If so, please provide details of the concern, suggestions to the proposed language that addresses the risk presented in recommendation 1f, and if appropriate, technical or procedural justification.
   ☐ Yes
   ☒ No

   Comments:
   For some Canadian entities, units already operate in cold weather annually from November to March. These requirements represent an added administrative burden.

   The new reliability standards requirement should be part of a regional variance for the regions where winterization programs are not in place. Canadian entity generators already operate successfully in cold climates with extreme conditions. For such entities, this is an additional compliance burden, with no additional benefit to grid reliability.

5. The SDT has proposed that owners of new generation that determine that they are not able to implement freeze protection measures due to technical, commercial, or operational constraints review their determination every five years for EOP-012-1 Requirement R2. Is this separate requirement for "new" generation necessary, given that proposed Requirement R4 provides for Generator Owners to perform a similar review every five years to address the ongoing need to review freeze protection measures and historical cold weather temperatures? Please provide any explanation with your response.

   ☐ Yes
   ☒ No

   Comments:
   Requirement R4 appears to already fulfill the requirement of R2. The 2 requirements should be merged into one.

6. The Standard, as proposed, would require Generator Owners to develop plans for modifying generating units to operate to the minimum hourly temperature over the next five years after Commission approval. While Generator Owners identify those generating units that need modifications, develop corrective action plans, and implement modifications, it is important for the ERO Enterprise to have aggregated data about the status of Generation Owners' extreme cold weather preparedness for its generating units for use in its reliability oversight activities.

   The SDT believes that there is benefit to having the ERO Enterprise collect information on progress of Generator Owner plans for modifying generating units. The information could be collected through reporting under mandatory Reliability Standard requirements, through a Periodic Data Submittal under Section 400 of the Rules of Procedure (which may or may not be specified in the Compliance section of the standard), or through a request for data under Section 1600 of the Rules of Procedure. Which of these options do you believe is the best procedural option for collecting this information?

   Comments:

   RSC abstains from commenting on the best procedural option and trusts that the ERO Enterprise is best suited to make such a determination.

7. The drafting team has developed a proposed data collection framework which could form the basis for a periodic data submittal. If you have any comments or edits to the suggested language, please propose an alternative to address the identified risk during the phased-in compliance period.

Collection framework:

- The Generator Owner will submit an annual summary table **by October 1 of each year** to its Regional Entity regarding the status of its generating units (as that term is used in EOP-012-1 4.2 Facilities) having freeze protection measures in accordance with Requirements R1 and R2, along with a nine-year projection of status based on the timetables it has determined for Requirement R1. All projections will be based on the Generator Owner's timetables under Requirement R1.4.2; if timetables are not complete for all units, some MW can be designated as "to be determined." The summary table shall contain:
  - Status year (for current year, and future years 1-9);
  - Sum of capacities (in MW) of all generating units applicable under Facilities, section 4.2;
  - Sum of capacities (MW) of generating units meeting (for current year) and projected to meet (for each of the future years 1-9) the criteria of Requirement R1.1;
  - Sum of capacities (MW) of generating units not meeting (for current year) and projected to not meet (for each of the future years 1-9) the criteria of Requirement R1.1;
  - Sum of the capacities (MW) of existing generating units declared for no action under Requirement R1 (for current year, and projected for future years 1-9);
  - Sum of the capacities (MW) of new generating units identified for no action under Requirement R2 (for current year, and projected for future years 1-9).

Comments:
We are questioning the added value of EOP-012 for the specific operating context of some Canadian entities' hydroelectric generating units.

RSC requests that SDT consider whether October 1 provides enough lead time to support the needs of BAs to make necessary preparations for the winter weather season.

This is an unnecessary administrative burden for all the generating units, especially Canadian entities generating units.

8. The SDT proposes that the modifications in EOP-011-3 and the newly drafted EOP-012-1 meet the key recommendations in The Report 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:
For Canadian entities, the necessary cold weather practices are already in place. The administrative burden associated with the tasks being required in the standards outweighs the

reliability benefits, as we already have a good handle on planning, operations, and maintenance activities in cold (and even extreme cold) weather.

Although RSC abstains from commenting on whether the modifications meet the key recommendations in The Report in a cost effective manner, RSC comments "No" here consistent with comments in response to Question 1. As proposed, EOP-011 has the unintended consequence of requiring RSC and other transmission-only entities to implement provisions that, in fact, Distribution Providers and UFLS-Only Distribution Providers are required to perform in order to mitigate operating Emergencies.

There is little to no benefit to grid reliability by imposing training requirements annually, across the board; this is not a cost effective approach.
The winterization program call-ups task are not knowledge based tasks and do not requires annual refresher for the maintenance personnel to be able to perform the maintenance as required by the maintenance package.
Moreover, for the operating personnel's annual training, a suggestion is made to have the operator's training included as part of the PER-006-1 Specific Training for Personnel, Requirement R1.

9. The SDT is proposing an 18-month implementation time frame for all revised and new requirements except EOP-012-1 Requirements R1 and R2 which have a 5-year implementation time frame. Do you agree with this implementation time frame? 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.

☒ Yes
☐ No

Comments:
The 5 years implementation timeframe may be arbitrarily chosen; i.e. there is no correlation between the number of the generating units requiring compliance measures implementation and the implementation timeframe. Timeframe for implementation should be subject to the outage coordination process and the negotiation between the GO/GOP and BA and should be mutually agreed upon by both GO/GOP and BA.

10. Provide any additional comments for the standard drafting team to consider, including the provided technical rationale document, if desired.

Comments:

NPCC RSC has concerns with EOP-012, R2, and R2 states once every five years, but the evidence retention period is only 3 years, and GO/GOP are audited every 6+ years. There is a disconnect with the evidence retention period.
For R4, the retention period is: 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. All requirements under this standard should have a retention period “since the last audit”.

For Canadian entities, the operation of hydroelectric generating units in cold weather conditions is part of the normal operating conditions. The design, maintenance, and operation of the generating units are done accordingly. For example, the generating units being installed indoors (either in a powerhouse or underground), these units do not require specific freezing measure protection.

Sub requirement 1.2.5.3 and 1.2.5.4 of Requirement 1.2.5 in EOP-011-3 state:
1.2.5.3. Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for underfrequency load shed (UFLS) or undervoltage load shed (UVLS); and
1.2.5.4. Provisions for limiting the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions.

If, for a certain region, there is no provision to minimize the overlap of the circuit because the load is insufficient, how does an entity comply with the requirement?

Sub requirement 1.2.5.1 of Requirement 1.2.5 in EOP-011-3 states:
1.2.5.1 Provisions for manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;

What amount of load should be available for operator-controlled manual load shedding?

Consider removing the Time Horizon and VRF columns in the EOP-011-3 VSL Table.

Requirement R3 in EOP-012-1 reads that “each GO shall implement and maintain one or more cold weather preparedness plans …” whereas R5 refers to “implementing cold weather preparedness plans developed pursuant to R3.”. The SDT should consider revising R3 to include “develop, implement and maintain one or more cold weather preparedness plans”.

As proposed, EOP-011 has the unintended consequence of requiring transmission-only entities to implement provisions that, in fact, Distribution Providers and UFLS-Only Distribution Providers are required to perform in order to mitigate operating Emergencies. RSC requests that the Standard Drafting Team revise EOP-011 and the Technical Rationale with due consideration to areas of the ERO Enterprise for which the Transmission Operator does not serve as a Distribution Provider nor UFLS-Only Distribution Provider.

Having “Provisions to minimize the overlap of circuits” in 1.2.5.3. “Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for underfrequency load shed (UFLS) or undervoltage load shed (UVLS); and”, can potentially allow for noncompliance with the coordination with other UFLS programs, required by PRC-006-NPCC-2 (i.e. coordination between the manual and automatic UFLS)
The suggestion is made that the word coordinated should be added to 1.5.2.1, as follow:
“Provisions for **coordinated** manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;”
The suggestion is made that the word coordinated should be added to 1.5.2.2, as follow:
“**Coordinate the** ~~Provisions to minimize the overlap of circuits that are designated for~~ manual Load shed ~~and circuits that are utilized for~~ **with the automatic** underfrequency load shed (UFLS) or **automatic** undervoltage load shed (UVLS); and”.