NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Questions and Answers

Cold Weather Preparedness Small Group Advisor Session General Session Webinar

Background

On March 7, 2023, the ERO Enterprise hosted a Cold Weather Preparedness Small Group Advisory Sessions General Session Webinar as well as one-on-one sessions for registered entities focused on frequently asked questions and compliance monitoring approaches related to EOP-011-2 R7 and R8, IRO-010-4 R1.3, and TOP-003-5 R1.3. The following are the questions and answers discussed during the general session as well as during the one-on-one sessions.

Questions and Answers

Q1: At what level of detail do you provide Transmission entities cold weather Generator data for planning of events considering the impacts based on several variables (e.g., data with wind, temperature, and relative humidity)?
A1: The level of data provided should be documented in the Transmission Operator data specification per TOP-003-5.

Q2: Regarding EOP-011-2, can R7.3.2.1, design temperature be used if the unit cannot perform a cold startup at that temperature?
A2: The cold weather preparedness plan must identify a cold weather operating temperature using one of the three methods in R7.3.2.1 to 7.3.2.3. Regardless of the method chosen the entity should understand the limitations that exist that could prevent the unit from operating at the identified temperature. Limitations to the identified temperature, such as capability or availability limitations related to cold startup, would be documented under R7.3.1.

Q3: Regarding IRO-010-4 and TOP-003-5, what if the BA, RC or TOP specifies only certain data, such as a single dry bulb temperature, even though we have additional data available?
A3: IRO-010-4 and TOP-003-5 both have Requirements regarding a "mutually agreeable format" and a "mutually agreeable process for resolving data conflicts."

Q4: Why is there so much emphasis placed on fuel switching capability?
A4: Per the South Central Cold Weather Event report, "Some generators have dual-fuel capability – that is, they allow for a unit to switch from its primary source of fuel (e.g., natural gas) to a secondary source of fuel (e.g., oil or coal) if needed. Fuel switching is one method that generators can use to alleviate the strain when a particular fuel source is in short supply. It can also be useful when seeking cheaper alternatives for fuel."

Q5: We have individual plans and training for each of our locations. Is this the intended approach?
A5: The language in EOP-011-2 R7 allows for “one or more cold weather preparedness plans”. This language provides flexibility for the entity to determine whether a single plan or multiple plans are necessary. For training, EOP-011-2 R8 states that "generating unit-specific training" is to be provided. The

Standard calls for generating unit-specific training to be provided to the maintenance or operations personnel responsible for implementing cold weather preparedness plans. Further, consideration should be given to administering training based on changes to the plan, facility or staff. Initial training should be completed as outlined in the plan and must be completed prior to 4/1/23.

Q6: Can you provide more specifics on what is meant by environmental constraints? What evidence are you looking for?
A6: Some jurisdictions may have environmental-quality requirements that are mandated by a governmental agency. That requirement may cause a constraint on the generating units' ability to provide support. As an example, the Texas Commission on Environmental Quality (TCEQ) has air quality requirements in place that are to be followed unless otherwise directed by the TCEQ.

Q7: What criteria is acceptable for use in defining a "cold weather event" for our facility?
A7: The SDT stated, "The SDT determined during the development of the SAR, that since there are different interpretations of "cold weather" across the ERO due to geographic location and climate, it would not be feasible to define a term that would be acceptable to everyone. Each entity should use their own weather resource(s) and operating experience for their generating facilities to establish the appropriate cold weather conditions."

Q8: How detailed do our generating unit annual inspection and maintenance freeze protection measures need to be in our Plan?
A8: A plan should provide sufficient detail so that the responsible personnel implementing the plan can understand what actions are needed.

Q9: What documentation would satisfy the evidence our cold weather preparedness plan(s) was implemented?
A9: Compliance will be determined by facts and circumstances. "Implemented" is generally demonstrated by providing effective documentation that the steps within a plan have been completed. The depth of documentation will depend upon what is called out in the cold weather preparedness plan. For example, if a site requires heat tracing to be evaluated for operation as part of the cold weather preparedness plan it would be considered as best practice that the entity has a complete listing of heat traces installed, maintenance/inspection activities defined, training documented/tracked, dated and signed checklists/work orders of maintenance/inspection, and internal reviews of progress/status of heat tracing activities. Each entity may incorporate a variety of activities to demonstrate implementation of the cold weather preparedness plan.

Q10: Our interpretation of the Generating Unit Definition for the Cold Weather Plan EOP-011-2 Section 4.2 Facilities section is that it identifies BES generators in scope and includes only units generating active power and that synchronous condenser (only) units are not included. Is that correct?
A10: Not necessarily. The ERO Enterprise would like to point out that the Standard is simply a baseline of activities to be completed. If the synchronous condenser were required for reliable operations, it would be in the best interest of the industry to include these type of facilities in their cold weather preparedness plans. If the RC/BA/TP has data specifications that include cold weather preparedness plans for synchronous condensers, the owner is obligated to provide the information.

Q11: Does the EOP-011-2 definition of "generating unit" need to be the same as the FAC-008 defined generator Facility? There are units that have equipment outside the powerhouse and which may not be considered as part of FAC-008 ratings. In case there are relevant considerations to have slightly different equipment in scope of EOP-011-2, what criteria would be appropriate to define the boundary of a generating unit, e.g., high-side of the step-up transformer, switchyard fence, etc.? Also would the generating unit definition need to be expanded to include auxiliaries such as equipment required to blackstart a unit, Station Service transformers, etc. as well?
A11: No. The Standard Drafting Team provided the following answer to a similar comment: "Based on much deliberation over the term generating Facility, the SDT determined generating units is the appropriate facility term for the EOP-011 standard." The SDT stated, "It is understood that an entity may need to develop separate cold weather preparedness plans for each generating unit based on their configuration and characteristics." The configuration and characteristics they refer to includes auxiliary and support, regardless of the NERC Glossary definition of Facility. Anything that impacts the availability and capability of the unit.

Q12: Regarding geographical location and plant configuration – do cold weather preparedness plans need to be site specific taking into account localized ambient conditions, or can they be based on 'cold weather' regions?
A12: The SDT stated, "A cold weather preparedness plan needs to be developed based on your geographical region and facility design, which would be determined by the generating unit."

Q13: Regarding training frequency, is there an annual/periodic training expectation for maintenance and/or operations personnel? Can the plan include flexibility on the frequency of training based on identified changes that would be material and therefore only then require refresher training? Would a one-time training meet the compliance measure for EOP-011-2 R8, provided that no material changes to the plan occurred? Would it be reasonable to assume that, after the initial training (including new hire training), training would need to be redone only if there are material changes in the cold weather preparedness plans?
A13: Cold weather preparedness plans are cyclic in nature and training should follow that cycle. The SDT stated the following: "The SDT considered defining the training requirement and decided to allow the Generator Owner and Generator Operator to determine the frequency and timing for the training." Consideration should be given to administering training based on changes to the plan or facility. Initial training should be completed as outlined in the plan and must be completed prior to 4/1/23.

Q14: What would constitute an acceptable "engineering analysis" for the option where a GO provides an engineering analysis? Is the term "current" pertaining to a specific time window or specific to relevant parameters changing within the engineering analysis? Is the "current cold weather" temperature a one-time calculation, or does it need a periodic refresh?
A14: For an engineering analysis, ERO Enterprise staff will be interested in how the model was developed and applied to determine the "current cold weather performance temperature." Compliance will be determined by facts and circumstances. The interpretation of "current" will be informed by the data specifications called out in IRO-010-3 and TOP-003-5 which provide "A periodicity for providing data" (R1.4) and "The deadline by which the respondent is to provide the indicated data." (R1.5). ERO Enterprise staff may be interested to see how the plan uses updated data to develop their plan, which could include analysis, historical trends, lessons learned or design changes.

Q15: What would be acceptable as criteria around a) local forecasted cold weather, b) timing for forecast, c), timing of notification of a forecasted cold weather (for example, Friday's OPA is for Monday), and applicability of cold weather?
A15: The Standard was written to provide flexibility with regards to data specification and the provision of said data. Compliance will be determined by facts and circumstances, and ERO Enterprise staff will be interested in how an entity makes a good faith effort to obtain the best data possible if their location makes data collection challenging. If an entity has concerns with the adequacy of their available forecasts, it is encouraged to contact the Regional Entity to discuss reasonable expectations.

Q16: Regarding checklist maintenance, how does NERC view cold weather events that happen after appropriate completion of pre-season inspection & maintenance checks?
A16: Registered entities need to follow their plan. Registered entities should also review "Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination" and the subsequent FERC Order Approving Extreme Cold Weather Reliability Standards (https://www.nerc.com/FilingsOrders/us/Pages/2023FERCOrdersRules.aspx).

Q17: What specifically is required to document for EOP-11-2 R7.3.1, especially on the Capability and Availability sub-requirement?
A17: Capability and availability should directly correlate to the RC/BA/TOP data specifications provided in IRO-010-4 and TOP-003-5. This is not a one-time submission. The expectation is that this is maintained and updated based on changing conditions and based on data specification. Further, it is expected regardless of whether RC/TOP requested it as part of IRO-010-4 and TOP-003-5.

Q18: Currently, we only document the design temperature for wind turbine and for the inverter and related equipment supporting the inverters. Is that sufficient?
A18: Design temperature should directly correlate to the RC/BA/TOP data specifications provided in IRO-010-4 and TOP-003-5. Registered entities should consider all systems, not just a subset.

Q19: What is the expectation to provide data to RC/BA/TOP?
A19: The functional entity data specifications called out in IRO-010-4 and TOP-003-5 will provide "A periodicity for providing data" (R1.4) and "The deadline by which the respondent is to provide the indicated data." (R1.5). Also, entities receiving such data specifications (R5) must provide all requested data using:

- A mutually agreeable format,
- A mutually agreeable process for resolving data conflicts, and
- A mutually agreeable security protocol.

Q20: What is EOP-011-2 R7.1 referring to for 'plant configuration'? Do we mean whether there is a cold weather package installed or is it site specific?
A20: No, it is site/unit specific. The SDT stated, "As the SDT has stated in previous responses to industry, it is understood there will be different levels of cold weather preparations based on plant location and configuration." In the approved SAR, the following is stated: "Each BES facility considered here may have numerous unique characteristics based on factors such as construction, technical configuration,

geographic differences, etc. The substantive differences may require flexibility for each generation resource to develop the appropriate plans to implement during cold weather events."

Q21: For a newly constructed unit meeting the applicability section of EOP-011-2, is the "annual maintenance and inspection of generating unit(s) freeze protection measures" required prior to the date of commercial operation (date added to NERC Compliance Registry)?
A21: Registered entities should review any Reliability Standard prior to a unit's first usage or Commercial Operation Date (COD) so that the unit will support reliable operations and the Generator Owner has reviewed all applicable Standards, including but not limited to EOP-011-2 R7 and R8. It would be an expectation to complete the annual inspection and maintenance of freeze protection measures to support demonstration of an implemented cold weather preparedness plan.

Q22: For facilities with BES generating units under Inclusion I4 that have multiple maintenance cycle(s) during the year that are performed based on OEM specifications to maintain health and reliability of the generating unit; would the current cycle(s) meet the annual inspection and maintenance criteria, even if it does not align with winter seasonal preparation? How would the evidence look for the I4 generating units; unit by unit or site attestations that maintenance cycle(s) were completed?
A22: The SDT stated "...The purpose statement has been updated to reflect the new requirements for EOP-011-2. Please see the updated modifications to the EOP-011-2 standards, which address some of your concerns. Based on much deliberation over the term generating Facility, the SDT determined generating units is the appropriate facility term for the EOP-011 standard. Lastly, the SDT is not defining cold weather as a glossary term. This will be defined with your cold weather preparedness plan based on geographical regions." Evidence (record or checklist) should include annual inspections as outlined in plan and as specified for each unit. An attestation would not be sufficient.

Q23: How should we capture minimum design temperature for a completely enclosed BES generating unit?
A23: Design temperature should directly correlate to the RC/BA/TOP data specifications provided in IRO-010-4 and TOP-003-5 and should consider all systems, not just a subset. Research on applicable equipment within a generating unit to determine the minimum is the approach that should be taken.

Q24: If personnel become responsible for carrying out tasks in the cold weather preparedness plan during a winter season, and they previously have not received training, are they required to have training before performing the actions?
A24: The registered entity is responsible for the cold weather program including training of both employees and contractors as needed and per the cold weather plan. Consideration should be given to administering training based on changes to the plan or facility. Initial training should be completed as outlined in the plan and must be completed prior to 4/1/23.

Q25: Given that fuel constraint/availability is ultimately out of the control of the plant, so what is expected here? The Gas Entity's contract with the Facility? The Gas Entity's weather security plan?
A25: Constraints and availability should directly correlate to the RC/BA/TOP data specifications provided in IRO-010-4 and TOP-003-5.

Q26: What would be expected for generating units in regions where "cold weather", is not historically impactful to the area a (e.g., a generating unit in an arid, desert region)?

A26: Generator Owners shall implement and maintain cold weather preparedness plans that include generating unit(s) freeze protection measures based on geographical location and plant configuration. The plan should cover the equipment comprising a generating unit and provide details of applicable freeze protection measures for equipment. Compliance is determined by facts and circumstances.

Q27: What do you consider a maintenance activity? Do you expect to see maintenance activities every year? If a Generator Owner completes its annual review/checklist in October for a unit, and finds that the unit temperature is below freezing, is it acceptable for the Generator Owner to determine no other activities needed for weatherization?
A27: It is probable that the Generator Owner in this example would have a process to respond to the freezing temperature inspect and perform whatever maintenance activities are necessary to ensure the freeze protection measures are available and functional. Maintenance will be defined by the responsible entity within the cold weather preparedness plan. Generator Owners shall implement and maintain cold weather preparedness plans that include generating unit(s) freeze protection measures based on geographical location and plant configuration.

Q28: What do you consider to be an environmental constraint?
A28: Some jurisdictions may have an environmental-quality requirement that are mandated by a governmental agency. That requirement may cause a constraint on the generating units' ability to provide support. Examples include:

- The Texas Commission on Environmental Quality (TCEQ) has air quality requirements in place that are to be followed unless otherwise directed by the TCEQ.
- Cases where Generator Owner know that once a unit drops below a certain temperature, it can only run a certain amount of hours before hitting its emission limits.

Q29: Is there a process in place to obtain an emissions waiver (such as from a state's commission) in the event one is needed to operate?
A29: When evaluating the "environmental constraint" wording of the Standard, applicable emissions waivers will be considered and that relevant communication of revised limitations is provided to the applicable RC/BA/TOPs.