

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 the creation of new standard EOP-012-1 as well as the revised EOP-011-3.

Recommendation 1d

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

Standard: EOP-012-1		
Requirement in Approved Standard	Transition to New Standard or Other Action	Description and Change Justification
This requirement does not exist in an already approved standard. It is new to EOP-012-1.	EOP-012-1 Requirement R6 R6. Each Generator Owner that owns a generating unit that experiences an event resulting in a derate of more than 10% of the total capacity of the unit for longer than four hours in duration, a start-up failure where the unit fails to synchronize within a specified start-up time, or a Forced Outage for which (i) the apparent cause(s) of the event is due to freezing of the Generator	This requirement addresses recommendation 1d for Generator Owners to develop and implement a CAP based on a unit's outage, failure to start or derate. The CAP requirement applies to any forced outage due to freezing, regardless of duration. Derates, which are short-lived or of small capacity impact, are excluded from the CAP requirement. R6 requires the GO to act within 150 days or July 1 to develop the CAP or document that no corrective action is appropriate. This timeframe was chosen to allow GO's to review multiple events holistically following a winter

	<p>Owner’s equipment within the Generator Owner’s control, and (ii) the ambient conditions at the site at the time of the event are at or above the temperature documented in Part 3.4.2 shall: <i>[Violation Risk Factor: High] [Time Horizon: Long-term Planning]</i></p> <p>6.1. No later than 150 days subsequent to the event or by July 1 that follows the event, whichever is earlier, develop a CAP.</p> <p>6.2. The CAP shall contain at a minimum:</p> <p>6.2.1. A summary of the identified cause(s) for the equipment freezing event where applicable and any relevant associated data;</p> <p>6.2.2. A review of applicability to similar equipment at other generating units owned by the Generator Owner;</p> <p>6.2.3. An identification of corrective action(s) for the affected unit(s) and identified similar units, including any necessary modifications to the Generator Owner’s cold weather preparedness plan(s);</p> <p>6.2.4. A timetable for implementing the identified corrective</p>	<p>season, and create one CAP for equipment with common failure causes while meeting the recommendation charge to be “developed as quickly as possible”. Requirement R6.2 define the requirements for a CAP and the requirements for a declaration when technical, commercial, or operational constraints are present.</p>
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	<p>action(s) from Part 6.2.3 which considers any technical, commercial, or operational constraints as defined by the Generator Owner;</p> <p>6.2.5. An identification of any temporary operating limitations that would apply until execution of the corrective action(s) identified in the CAP; and</p> <p>6.2.6. A declaration, where deemed appropriate by the Generator Owner based on the review of Parts 6.2.1 through 6.2.5 that no revisions to the cold weather preparedness plan are required and that no further corrective actions will be taken. The Generator Owner shall document technical, commercial, or operational constraints as defined by the Generator Owner as support for such declaration.</p>	
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Recommendation 1e

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

Standard: EOP-012-1		
Requirement in Approved Standard	Transition to New Standard or Other Action	Description and Change Justification
<p>EOP-011-2 Requirement R8</p> <p>R8. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide the training to its maintenance or operations personnel responsible for implementing cold weather preparedness plan(s) developed pursuant to Requirement R7.</p>	<p>EOP-012-1 Requirement R5</p> <p>R5. Each Generator Owner in conjunction with its Generator Operator shall identify the entity responsible for providing the generating unit-specific training, and that identified entity shall provide the annual training to its maintenance or operations personnel responsible for implementing cold weather preparedness plan(s) developed pursuant to Requirement R3.</p>	<p>EOP-011-2 Requirement R8 was moved to new standard EOP-012-1 Requirement R5. The language remains the same with the addition of the word annual to meet the charge in recommendation 1e of The Report.</p>

Recommendation 1f

To require Generator Owners to retrofit existing generating units, and when building new generating units, to design them, to operate to a specified ambient temperature and weather conditions (e.g., wind, freezing precipitation). The specified ambient temperature and weather conditions should be based on available extreme temperature and weather data for the generating unit’s location.

Standard: EOP-012-1		
Requirement in Approved Standard	Transition to New Standard	Description and Change Justification
<p>This requirement does not exist in an already approved standard. It is new to EOP-012-1.</p>	<p>EOP-012-1 Requirement R1</p> <p>R1. Each Generator Owner shall ensure generating units implement freeze protection measures based on the following minimum criteria: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning, Operations Planning]</p>	<p>This requirement addresses new build generation as well as existing generation to have freeze protection measures. Parts 1.1 through 1.3 lay out the requirements for unit design and Part 1.4 is a CAP requirement for any unit that has to implement new or modify existing freeze protection measure to meet the design requirements in Part 1.1 through 1.3. The SDT understands that the reliability goal of the</p>

- 1.1.** Each generating unit shall be designed and maintained to be capable of continuous operations at the documented minimum hourly temperature experienced at its location since 1/1/1975 or a lesser period if reliable data is not available to 1975;
- 1.2.** The generating unit design shall account for the cooling effect of wind;
- 1.3.** The generating unit design shall account for the impacts on operations due to precipitation (e.g., sleet, snow, ice, and freezing rain); and
- 1.4.** For each existing generating units that require either new freeze protection measures or modification of existing freeze protection measures, the Generator Owner shall develop and implement a Corrective Action Plan (CAP) which includes the following at a minimum:
 - 1.4.1.** An identification of corrective action (s) for the affected unit(s), including any necessary modifications to the Generator Owner’s cold weather preparedness plan(s);
 - 1.4.2.** A timetable for implementing the corrective action(s) from Part 1.4.1 which considers any technical, commercial, or operational constraints, as defined by the Generator Owner;

recommendation for existing generating units is to have the necessary freeze protection measures to be able to operate at extreme cold temperatures and weather for the generating unit’s location. For example, those measures may consist of existing or new, permanent and/or temporary measures to maintain operation during extreme cold temperatures.

	<p>1.4.3. An identification of any temporary operating limitations that would apply until execution of the corrective action(s) identified in the CAP; and</p> <p>1.4.4. A declaration, 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 and that no further corrective actions will be taken. The Generator Owner shall document technical, commercial, or operational constraints as defined by the Generator owner as support for such declaration.</p>	
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Recommendation 1j

In minimizing the overlap of manual and automatic load shed, the load shed procedures of Transmission Operators, Transmission Owners (TOs) and Distribution Providers (DPs) should separate the circuits that will be used for manual load shed from circuits used for underfrequency load shed (UFLS)/undervoltage load shed (UVLS) or serving critical load. UFLS/UVLS circuits should only be used for manual load shed as a last resort and should start with the final stage (lowest frequency).

Standard: EOP-011-3		
Requirement in Approved Standard	Transition to New Standard or Other Action	Description and Change Justification
<p>EOP-011-2 Requirement R1 Part 1.2.5 1.2.5 Provisions for operator-controlled manual Load shedding that minimizes</p>	<p>EOP-011-3 Requirement R1 Part 1.2.5</p>	<p>EOP-011-3 adds additional provisions and clarifies what the TOP must include in their Operating Plan to mitigate</p>

the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the Emergency; and

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

1.2.5.1. Provisions for ~~operator-controlled~~ manual Load shedding ~~that minimizes the overlap with automatic Load shedding and are~~ capable of being implemented in a timeframe adequate for mitigating the Emergency; ~~and~~

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

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.

operating Emergencies. Specific clarifications are to minimizing the overlap of manual Load shed and circuits that serve designated critical loads; 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. The SDT elected to keep the phrase “minimize the overlap” instead of moving to language that specifically requires the separation of circuits in recognition of the fact that it is not always practical or warranted to completely separate circuits used for each of these purposes.

<p>EOP-011-2 Requirement R2 Part 2.2.8</p> <p>2.2.8. Provisions for operator-controlled manual Load shedding that minimizes the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the Emergency; and</p>	<p>EOP-011-3 Requirement R2 Part 2.2.8</p> <p>2.2.8. Provisions for <u>Transmission Operators to implement</u> operator-controlled manual Load shedding <u>in accordance with Requirement R1 Part 1.2.5</u> that minimizes the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the <u>Emergency</u>; and</p>	<p>This part of R2 has been modified to refer back to Requirement R1, Part 1.2.5 in an effort to clarify that the Transmission Operator is responsible for addressing operator-controlled manual load shed requirements in their Operating Plan. Balancing Authorities are expected to specify manual load shed requirements for Transmission Operators within their areas in accordance with Part 1.2.5, but do not have the control or visibility to design and implement manual load shed programs and UFLS/UVLS programs that meet the requirements of Part 1.2.5.</p>