

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the NERC Board of Trustees (Board).

Description of Current Draft

This is the first draft of the proposed standard for a formal 30-day comment period.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	11/17/2021
SAR posted for comment	11/22/21 – 12/21/21

Anticipated Actions	Date
30-day formal or informal comment period with ballot	May – June 2022
30-day formal or informal comment period with additional ballot	August – September 2022
10-day final ballot	September 2022
Board adoption	October 2022

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s):

None

A. Introduction

1. **Title:** **Extreme Cold Weather Preparedness and Operations**
2. **Number:** EOP-012-1
3. **Purpose:** To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its generating units.
4. **Applicability:**
 - 4.1. **Functional Entities:**
 - 4.1.1. Generator Owner
 - 4.1.2. Generator Operator
 - 4.2. **Facilities:** For purposes of this standard, the term “generating unit” means those Bulk Electric System generators that plan to operate during the winter season. The winter season will be determined by the generating unit’s applicable Balancing Authority. The term excludes those generators that do not operate during the winter season except when called upon by the Balancing Authority to be available during Capacity Emergencies or Energy Emergencies.
5. **Effective Date:** See Implementation Plan for Project 2021-07.

B. Requirements and Measures

- 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*]
 - 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 unit that requires 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;
 - 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
 - 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.
- M1.** Each Generator Owner will have dated evidence that demonstrates it has freeze protection measures for its unit(s) in accordance with R1. Acceptable evidence may include the following (electronic or hardcopy format): Documentation of extreme temperature used for the freeze protection design, documentation of freeze protection measures, Facility cold weather preparedness plan, and CAP(s).
- R2.** Each Generator Owner that is not able to implement freeze protection measures for new generating unit(s) as required by Requirement R1 due to technical, commercial, or operational constraints as defined by the Generator Owner shall: *[Violation Risk Factor: Low] [Time Horizon: Long-term Planning]*
 - 2.1.** Document its determination and the constraints on implementation; and
 - 2.2.** Review its determination every five calendar years to determine whether the documented constraints on implementation remain applicable.
- M2.** Each Generator Owner will have dated evidence that demonstrates it documented constraints on implementation of freeze protection measures and conducted a review of its units in accordance with Requirement R2. Acceptable evidence may include the following dated documentation (electronic or hardcopy format): Documentation of technical, commercial, or operational constraint. Documentation of five calendar year reviews as applicable.
- R3.** Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum: *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*
 - 3.1.** Documented minimum hourly temperature experienced at its location since 1/1/1975 or a lesser period if reliable data is not available to 1975;
 - 3.2.** Documented generating unit(s) freeze protection measures based on geographical location and plant configuration;
 - 3.3.** Annual inspection and maintenance of generating unit(s) freeze protection measures; and

- 3.4.** Generating unit(s) cold weather data, to include:
- 3.4.1.** Generating unit(s) operating limitations in cold weather to include:
- 3.4.1.1.** Capability and availability;
- 3.4.1.2.** Fuel supply and inventory concerns;
- 3.4.1.3.** Fuel switching capabilities; and
- 3.4.1.4.** Environmental constraints.
- 3.4.2.** Generating unit(s) minimum:
- Design temperature;
 - Historical operating temperature; or
 - Current cold weather performance temperature determined by an engineering analysis.
- M3.** Each Generator Owner will have evidence documenting that its cold weather preparedness plan(s) was implemented and maintained in accordance with Requirement R3.
- R4.** Once every five calendar years, each Generator Owner shall: [*Violation Risk Factor: Low*] [*Time Horizon: Operations Planning, Real-Time Operations*]
- 4.1.** Review the documented minimum hourly temperature developed pursuant to Part 3.1, and update the cold weather preparedness plan with the lowest temperature as necessary;
- 4.2.** Review its documented cold weather minimum temperature contained within its cold weather preparedness plan(s) for its generating units, pursuant to Part 3.4.2; and
- 4.3.** Review whether its generating units have the freeze protection measures required to operate at the lowest temperature established pursuant to Requirement R1 and, if not, implement appropriate modifications per the requirements of Part 1.4.
- M4.** Each Generator Owner will have evidence documenting that it reviewed documented temperature data and updated its cold weather preparedness plan(s) accordance with Requirement R4.
- 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 annual training to its maintenance or operations personnel responsible for implementing cold weather preparedness plan(s) developed pursuant to Requirement R3. [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning, Operations Planning*]

- M5.** Each Generator Operator or Generator Owner will have documented evidence that the applicable personnel completed annual training of the Generator Owner’s cold weather preparedness plan(s). This evidence may include, but is not limited to, documents such as personnel training records, training materials, date of training, agendas or learning objectives, attendance at pre-work briefings, review of work order tasks, tailboards, attendance logs for classroom training, and completion records for computer-based training in fulfillment of Requirement R5.
- 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 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: *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*
- 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.
- 6.2.** The CAP shall contain at a minimum:
- 6.2.1.** A summary of the identified cause(s) for the equipment freezing event where applicable and any relevant associated data;
 - 6.2.2.** A review of applicability to similar equipment at other generating units owned by the Generator Owner;
 - 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);
 - 6.2.4.** A timetable for implementing the identified corrective action(s) from Part 6.2.3 which considers any technical, commercial, or operational constraints as defined by the Generator Owner;
 - 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
 - 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.
- M6.** Acceptable evidence for these requirements may include, but is not limited to, the following dated documentation (electronic or hardcopy format): CAP(s) and updated cold weather preparedness plan(s) where indicated as needed by the CAP.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: “Compliance Enforcement Authority” (CEA) means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention: The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the CEA may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Owner shall keep data or evidence to show compliance for three years or until any Corrective Action Plan under Part 1.4 is complete, whichever timeframe is greater, for Requirement R1 and Measure M1.
- The Generator Owner shall keep data or evidence to show compliance for three years for Requirement R2, R3, and R5 and Measure M2, M3, and M5.
- 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.
- The Generator Owner shall keep data or evidence to show compliance for three years, or until any Corrective Action Plan under 6.2 is complete, whichever timeframe is greater, for Requirement R6 and Measure M6.

1.3. Compliance Monitoring and Enforcement Program: As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R1 Parts 1.1 – 1.3 for up to 5% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R1 Parts 1.1 – 1.3 for more than 5%, but less than or equal to 10% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R1 Parts 1.1 – 1.3 for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not have freeze protection measure(s) meeting the criteria in Requirement R1 Parts 1.1 – 1.3 for more than 20% of its units; OR The Generator Owner did not develop or implement a CAP as required by Requirement R1.
R2.	The Generator Owner completed the review required in Requirement R2, but was late by 30 calendar days or less. OR The Generator Owner did not document its determination and the constraints described in Requirement R2 Part 2.1 for up to 5% of its units.	The Generator Owner completed the review required in Requirement R2, but was late by greater than 30 calendar days, but less than or equal to 60 calendar days. OR The Generator Owner did not document its determination and the constraints described in Requirement R1 Part 2.1 for more than 5%, but less than or equal to 10% of its units.	The Generator Owner completed the review required in Requirement R2, but was late by greater than 60 calendar days. OR The Generator Owner did not document its determination and the constraints described in Requirement R1 Part 2.1 for more than 10%, but less than or equal to 20% of its units.	The Generator Owner did not complete a review. OR The Generator Owner did not document its determination and the constraints described in Requirement R1 Part 2.1 for more than 20% of its units.

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<p>R3.</p>	<p>The Generator Owner implemented a cold weather preparedness plan(s), but failed to maintain it.</p>	<p>The Generator Owner’s cold weather preparedness plan failed to include one of the applicable Parts within Requirement R3.</p>	<p>The Generator Owner had and maintained a cold weather preparedness plan(s), but failed to implement it. OR The Generator Owner’s cold weather preparedness plan failed to include two of the applicable requirement parts within Requirement R3.</p>	<p>The Generator Owner does not have cold weather preparedness plan(s). OR The Generator Owner has a cold weather preparedness plan, but failed to include any of the applicable requirement parts within Requirement R3.</p>
<p>R4.</p>	<p>The Generator Owner completed the review required in Requirement R4, but was late by 30 calendar days or less.</p>	<p>The Generator Owner completed the review required in Requirement R4, but was late by greater than 30 calendar days, but less than or equal to 60 calendar days.</p>	<p>The Generator Owner’s review failed to include one of the applicable requirement parts in Requirement R4 Parts 4.1 through 4.3; OR The Generator Owner completed the review required in Requirement R4, but was late by greater than 60 calendar days.</p>	<p>The Generator Owner’s review failed to include two or more of the applicable requirement parts in Requirement R4 Parts 4.1 through 4.3; OR The Generator Owner does not have a completed review. OR The Generator Owner did not update the cold weather preparedness plan.</p>
<p>R5.</p>	<p>The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of:</p>	<p>The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of:</p>	<p>The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of:</p>	<p>The Generator Owner or Generator Operator failed to provide annual generating unit-specific training as described in Requirement R5 to the greater of:</p>

	<ul style="list-style-type: none"> • one applicable personnel at a single generating unit; or • 5% or less of its total applicable personnel. 	<ul style="list-style-type: none"> • two applicable personnel at a single generating unit; or • more than 5%, but less than or equal to 10% of its total applicable personnel. 	<ul style="list-style-type: none"> • three applicable personnel at a single generating unit; or • more than 10%, but less than or equal to 15% of its total applicable personnel. 	<ul style="list-style-type: none"> • four applicable personnel at a single generating unit; or • more than 15% of its total applicable personnel.
R6.	The Generator Owner did not develop a CAP meeting the elements in Requirement R6 parts 6.1 and 6.2 for 5% or less of its total events listed in Requirement R6.	The Generator Owner did not develop a CAP meeting the elements in Requirement R6 parts 6.1 and 6.2 for more than 5%, but less than or equal to 10% of its total events listed in Requirement R6.	The Generator Owner did not develop a CAP meeting the elements in Requirement R6 parts 6.1 and 6.2 for more than 10%, but less than or equal to 15% of its total events listed in Requirement R6.	The Generator Owner did not develop a CAP meeting the elements in Requirement R6 parts 6.1 and 6.2 for more than 15% of its total events listed in Requirement R6.

D. Regional Variances

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	TBD	Drafted by Project 2021-07	New