AUGUST 25, 2022

RSSC
Standard Development Activities

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – EOP-011-3 and EOP-012-1

Status:

- Second Posting for Draft 2 of EOP-012-1 – September 1, 2022.
- EOP-11-3 passed with 70% industry support – no further revisions
- Due to NERC Board by September 30, 2022

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination –

Phase 1 includes proposed requirements to address the following Recommendations from the Joint Inquiry Report:

- 1d – GO Corrective Action Plan: new EOP-012-1 Requirement 6 and 7
- 1e – Revise GO training requirement to include annual periodicity completed: new EOP-012-1 Requirement 5
- 1f – GO operation to specific ambient temperature and weather conditions (retrofit and new build): new EOP-012-1 Requirements 1, 2 & 7
- 1j – TO, TOP and DP separation of circuits used for manual load shed: revised EOP-011-3 sections 1.2.5 and 2.2.81d

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

Introduces 3 new definitions:

1. **Generator Cold Weather Critical Component:**

Any generating unit component or associated fixed fuel supply component, that is under the Generator Owner's control and is susceptible to freezing issues, the occurrence of which would likely lead to a Generator Cold Weather Reliability Event.

- Freeze protection measures only apply to a subset of components that may be susceptible to freezing and are critical to the operation of generating units.
- A fixed fuel supply component is intended to cover non-mobile equipment that supports the reliable delivery of fuel to the generating unit that is controlled by the Generator Owner.
- It would not include mobile equipment such as trains, bulldozers, or other equipment that are not fixed in one location

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

Introduces 3 new definitions (cont'd):

2. Extreme Cold Weather Temperature:

The temperature equal to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated.

3. **Generator Cold Weather Reliability Event:**

One of the following events:

(1) a 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, for which the apparent cause(s) is due to freezing of equipment within the Generator Owner's control and the dry bulb temperature at the time of the event was at or above the Extreme Cold Weather Temperature

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **Facilities Section – Applicability**

- Which Generating Units does this apply to?

  -Generating units that are obligated to serve a Balancing Authority load through an Open Access Transmission Tariff (Market Rules) or contractual agreement or

  -Identified as a Blackstart Resource

- Which units may operate but are not included in the standard?

  -Units that typical do not continuously run for four hours below 32 degrees Fahrenheit (0 degrees Celsius)

  -Exclusion applies even if said Units above have been called upon to mitigate emergencies at or below 32 degrees

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **EOP-012-1 Requirement R1 –**

  New Builds - Implementation of Freeze Protection Measures

- Applies to new units with COD after implementation date
- Capability to operate of not less than 12 continuous hours at the Extreme Cold Weather Temperature

  - GO documents Extreme Cold Weather Temperature

  - Generating units account for cooling effects of wind 20 mph on any exposed Cold Weather Critical Component

- Rule is specific to freeze protection measures
- GO may declare any technical or operational constraints that preclude the ability to implement appropriate freeze protection measures to hit target capability

Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **EOP-012-1 Requirement R2 –**

  Existing - Implementation of Freeze Protection Measures

- Applies to existing units with COD prior to implementation date
- Capability to operate of 1 hour at the Extreme Cold Weather Temperature
- Rule is specific to freeze protection measures
- Generating units not capable of operating for 1 hour at Extreme Cold Weather Temperature shall:

  - GO to develop a Corrective Action Plan (CAP) for identified issues, or

  - GO may declare any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures to hit target capability

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **EOP-012-1 Requirement R3 –**
- Language that was moved over from EOP-011-2 (Standards Effective April 1, 2023) remains largely unmodified.
- Each Generator Owner to implement and maintain one or more cold weather preparedness plans for its generating unit(s) subject to the standard which include the following:

  -3.4 Annual maintenance and inspection of such measures

  - 3.5.1 Generating unit limitations and expected performance in cold weather

    – Capability and availability

    – Fuel supply and inventory concerns

    – Fuel switching capabilities

    – Environmental constraints

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **EOP-012-1 Requirement R3 (cont'd) –**

  - 3.5.2 Each Generator Owner to develop accurate data to include:

    – The generating unit(s)' minimum design temperature (i.e., faceplate capability) during cold weather or

    – minimum historical operating temperature or

    – engineering analysis to determine current minimum cold weather performance temperature.

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **New for EOP-012-1 Requirement R3**

  - Cold Weather Preparedness Plans to additionally include:

    - 3.1 Extreme Cold Weather Temperature for generating unit(s), including the calculation date and source of temperature data

    - 3.2 Documentation identifying Generator Cold Weather Critical Components o

    - 3.3 Documentation of freeze protection measures implemented on Generator Cold Weather Critical Components, including measures that reduce the cooling effects of wind due to heat loss, and, where applicable, the effects of freezing precipitation (e.g., sleet, snow, ice, and freezing rain)

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **EOP-012-1 Requirement R4**
- 5 year review of temp, plan, freeze protection measures

  - 4.1. Review the documented Extreme Cold Weather Temperature developed, and update the cold weather preparedness plan as necessary;

  - 4.2. Review its documented cold weather minimum temperature contained within its cold weather preparedness plan(s) for its generating units

  - 4.3. Review whether its generating units have the freeze protection measures required to operate at the Extreme Cold Weather Temperature and, if not:

    - GO to develop a Corrective Action Plan (CAP) for identified issues, or

    - GO may declare any technical, commercial, or operational constraints that preclude the ability to implement appropriate freeze protection measures to hit target capability

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **EOP-012-1 Requirement R5**

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

- **EOP-012-1 Requirement R6**

  - Corrective Action Plans shall be developed for:

    - A derate of more than 10% of the total capacity of the unit, and exceeding 20 MWs, for longer than four hours in duration, or

    - A start-up failure where the unit fails to synchronize within a specified start-up time, or

    - A Forced Outage When the following conditions are met:

      (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 dry bulb temperature at the site at the time of the event are at or above the Extreme Cold Weather Temperature

  - CAPs shall be developed no later than 150 days subsequent to the event OR by July 1 that follows the event, whichever is earlier

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Extreme Cold Weather Grid Operations, Preparedness, and Coordination – Proposed EOP-012-1

- **EOP-012-1 Requirement R7**

  - If implementation is not possible due to any technical, commercial or operational constraints as defined by the GO, a declaration explaining these constraints is sufficient.

  - CAPs need to be updated as necessary if actions or timetables change

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Modifications to Reliability Standards:BAL-003-2 – Phase II

Frequency Response and Frequency Bias Setting

Status

-Formal comment period and initial ballots due September 7, 2022.

Proposed Revisions:

1. Proposing a new requirement in proposed BAL-003-3 (Requirement R5), that a Balancing Authority must have an Operating Process as part of its Operating Plan to address the needed Frequency Responsive reserves.

2. Proposing Requirements R6 and R7.

Requirement R6 is modeled after the VAR-002-4.1, Requirement R1 and requires the Generator Operator to operate generators with the Governor in service unless the Balancing Authority has been notified that the Governor is out-of-service.

Requirement R7 states that the Generator Owner is responsible to ensure minimum settings for the Governor droop and dead-band or notification to the Balancing Authority if the settings are not within these minimum settings

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Modifications to PRC-024-3: Generator Ride-Through frequency and voltage setting for generating resource Standard Authorization Request

Status

-Comment period for SAR concluded July 14, 2022.

Scope

-SAR is meant to retire PRC-024-3 and replace it with a performance-based ride-through standard that ensures generators remain connected to the BPS during system disturbances.

Specifically,

- focuses on the generator protection and control systems that can result in the reduction or disconnection of generating resources during these events
- ensures protection or controls that fail to ride through system events are analyzed, addressed with a corrective action plan (if possible), and reported to necessary entities for situational awareness

Modifications to MOD-026-2
Verification of Dynamic Models and Data for BES Connected Facilities

Status

-Initial ballot for Draft 1 concluded on July 6, 2022. Did not pass.

Summary of Proposed Revisions

- MOD-026 and MOD-027 are merged
- TP to provide clear requirements and processes (R1)

  - Acceptance criteria, types of models, format, etc.
  - Process for submittal

- EMT Model requirements (R6)

  - Provisions for legacy equipment
  - More detailed package of information required
  - Verify documentation with model
  - Validate with testing (OEM device testing & field test)

- TP reviews in alignment with developed acceptance criteria
- Update model required if impact to dynamic performance
- Synchronous condenser, FACTS devices, HVDC Facilities

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Modifications to MOD-026-2: Verification of Dynamic Models and Data for BES connected facilities

Nearly identical process and language for MOD-026/027-1 Requirements R1, R3, R4, R5, and R6

-Only Requirement R2 of MOD-026/027-1 has specific wording for each standards

-MOD-026-1: excitation control or plant volt/var control

- MOD-027-1: turbine/governor and load control or active power/frequency control

-Allows for consolidation of process related requirements

-Verification of EMT models for Facility is a new Requirement R6, which would have been a new requirement in both standards

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Modifications to PRC-002-3
Disturbance Monitoring and Reporting Requirements

Status

-Initial Ballot for Draft 1 concluded July 25, 2022.

Scope of Proposed Revisions

-Clarify the necessary notifications in Requirement R1, Part 1.2 relative to FR data, and clearly identify the BES Element owners that need to have FR data for transformers and transmission lines with the associated identified bus

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