

Extreme Cold Weather Preparedness and Operations

Entity Coordination

Emergency Operations Planning

Operating During Emergencies/Backup & Recovery

Training

WECC Intent

The *Controls Guidance and Compliance Failure Points* document guides registered entities in assessing risks associated with their business activities and designing appropriate internal controls in response. WECC's intent is to provide examples supporting the efforts of registered entities to design controls specific to operational risk *and* compliance with the North American Electric Reliability Corporation (NERC) Reliability Standards. The registered entity may use this document as a starting point in assessing risk and designing appropriate internal controls. Each registered entity should perform a risk assessment to identify its entity-specific risks and design appropriate internal controls to mitigate those risks; WECC does not intend for this document to establish a standard or baseline for entity risk assessment or control objectives.

***Note:** Guidance questions help an entity understand and document controls. Any responses, including lack of affirmative feedback, will have no consequences on an entity's demonstration of compliance during a Compliance Monitoring and Enforcement Program (CMEP) engagement.*

** Please send feedback to internalcontrols@WECC.org with suggestions on controls guidance and potential failure points questions.*

Definitions

Control Objective: The aim or purpose of specified controls; control objectives address the risks related to achieving an entity's larger objectives.

Control Activities: The policies, procedures, techniques, and mechanisms that enforce management's directives to achieve the entity's objectives and address related risks.

Internal Control: The processes, practices, policies or procedures, system applications and technology tools, and skilled human capital that an entity employs to address risks associated with the reliable operation of

its business. Internal control components include:

- Control Environment;
- Risk Assessment;
- Control Activities;
- Information and Communication; and
- Monitoring.

Quality Assurance / Quality Control (QA/QC): How an entity *verifies* whether it performed an activity or verifies an activity was performed *correctly* (examples include separation of duties, having a supervisor double-check someone's work, etc.).

Risk Category: Type of operational and inherent risks identified by the Electric Reliability Organization (ERO) Enterprise for use in the Compliance Oversight Plan (COP). Entities should use Risk Categories to understand, monitor, and mitigate known and future risks.

Risk Category

The purpose of the extreme cold weather preparedness and operations standard is 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 applicable generating units.

Emergency Operations Planning: Entities must have the necessary facilities, tools, processes, and procedures to prevent or respond to system events, emergencies or unexpected conditions. Failure to develop adequate plans may result in gaps that could lead to a compromise of BPS reliability and security.

By requiring an entity to analyze the likelihood and impact of specific events (such as extreme weather) on their system, EOP-012-2 encourages entities to develop plans that either prevent failures (such as preventative maintenance) or provide guidance for operation during the most likely scenarios.

Entity Coordination: Coordination, internally and externally, as with third-party suppliers and contractors before making changes to the system or taking any actions with the potential to affect another entity and, in turn, affect BPS reliability and security. Coordination should address the risk associated with operating horizon, planning horizons and during emergencies. Failure to coordinate may affect BPS reliability and security.

Operating During Emergencies/Backup & Recovery: Entities must act during an emergency, system event, or unexpected conditions that could result in instability, uncontrolled separation, or cascading outages within an interconnection. This can include:

- Ensure personnel are sufficiently prepared and have adequate access to the procedures, processes, tools, and facilities to respond appropriately and effectively.
- Ensure adherence to processes and procedures.
- Ensure proper operation, availability, and use of facilities and tools.



Training: Personnel and operators must have adequate knowledge and skills to ensure BPS reliability and security. Failure to adequately train personnel may compromise BPS reliability and security.

Control Objectives

Your entity should perform a risk assessment and identify entity-specific control objectives to mitigate those risks. To help entities get started, WECC has identified generic control objectives to mitigate the risks associated with the risk categories mentioned above and EOP-012-2. You may want to consider these six objectives:

Control Objective 1: Ensure risks associated with operating during cold weather emergencies are identified and analyzed. (Relates to Emergency Operations Planning)

Control Objective 2: Ensure processes are in place to prepare for and mitigate cold weather operating emergencies. (Relates to Emergency Operations Planning)

Control Objective 3: Ensure processes are in place to operate during cold weather emergencies (resiliency plans). (Relates to Operating During Emergencies/Backup & Recovery and Training)

Control Objective 4: Coordinate during cold weather emergencies. (Relates to Entity Coordination)

Control Objective 5: Ensure processes are in place to return to normal operations. (Relates to Operating During Emergencies/Backup & Recovery)

Control Objective 6: Review and update cold weather preparedness plan(s). (Relates to Emergency Operations Planning)

Reliability and Security Control Activities

Control activities are how your entity meets your control objectives. As you design controls, your entity should tailor them to meet the applicable entity-specific control objectives.

Below are examples of control activities based on good practices WECC has observed that are designed to meet the objectives listed above. WECC does not intend for these activities or the associated questions to be prescriptive. Rather, they should help your entity consider how you might meet your objectives in your own unique environment. They also may help your entity identify controls you did not realize you had.

Control Objective 1: Ensure risks associated with operating during cold weather emergencies are identified and analyzed.

Control Activity A: Ensure all appropriate personnel participate in identifying risks associated with cold weather operating emergencies.

1. Does your entity include SMEs from other departments, agencies, entities (including neighboring or those requiring interaction), or groups outside operations in the risk assessment process?
2. Does your entity include SMEs from multiple locations in the risk assessment?



3. Have these entities been included during a review of the cold weather preparedness plan(s) to help identify risks?
4. Does your entity have a defined process to follow when a new risk is identified?
 - a. How is the risk communicated to all those who could be impacted?

Control Activity B: Perform extreme weather risk assessments. (Relates to risks associated with R1, R2)

1. How does your entity calculate the Extreme Cold Weather Temperature (ECWT)?
 - a. How do you select the data source for the calculation?
 - b. How do you treat missing hourly data in the ECWT calculation?
 - i. Do you consider other temperature sources or locations to fill the gaps?
 - ii. Do you thoroughly document how much data is missing and the reasons for the missing data (if known)?
 - iii. Do you have internal or external peer review of the ECWT calculations that have missing data from the expected data set (per the definition)?
 - iv. Have you established a technically justified rationale for the amount of data that may be missing?
 - v. Do you consider biasing data from another source or averaging data from other days (if possible)?
 - c. Where there is an elevation change between the site and the closest data source, how do you account for that elevation change?
 - d. Do you have different temperature data sources for different applicable units?
 - i. If so, how do you track the sources?
2. How does your entity determine generating unit(s) minimum operating temperatures?
 - a. What sources do you use for design temperature information?
 - i. Do you have access to manufacturer data?
 - ii. Does your data take wind speed and precipitation into account?
 - b. What inputs do you include for the engineering analysis of current cold weather performance temperature?
 - i. Do you take plant configuration into account?
 - ii. Do you consider cold start scenarios?
3. What methods does your entity use to identify Generator Cold Weather Critical Components?
 - a. What modeling or scenario analysis do you employ?
4. Does your entity employ the permanent building exclusion at any site when assessing Generator Cold Weather Critical Component applicability?
 - a. If so, how do you ensure the temperature in the space is kept above 32° F (e.g., methods and measurements)?
 - b. What is the level and periodicity of maintenance performed on the building or its components (e.g., insulation, HVAC, air intake vents)?



5. Does your entity also consider the risks to auxiliary and support equipment that may impact the availability and capability of the unit(s)?
6. Does your entity assess the risk related to personnel during extreme cold weather?
7. How does your entity determine the potential reliability impacts of extreme weather conditions?
 - a. What modeling or scenario analysis do you employ?

Control Activity C: Identify risks associated with the supply chain.

1. Has your entity entered into contracts with suppliers of critical equipment to mitigate risk during cold weather emergency operations?
2. Has your entity identified sources for long-lead-time parts?
3. Has your entity identified critical chemicals, fuels, and lubricants?
4. Does your entity have a list of pre-approved suppliers for use in case of emergency procurement?

Control Objective 2: Ensure processes are in place to prepare for and mitigate cold weather operating emergencies.

Control Activity A: Select and implement freeze protection measures (Relates to risk associated with R2, R3)

1. How does your entity select appropriate freeze protection measures?
 - a. In selecting measures, do you consider supply chain aspects? (e.g., spare equipment, fuel, contractor availability)
 - b. Do you have a review process to confirm the measures meet or exceed the stated goals?
 - c. Do Generator Cold Weather Critical Components garner additional review for their freeze protection measures?
2. Does your entity utilize temporary or permanent freeze protection measures?
 - a. For temporary measures (e.g., tarps), how do you determine the installation time frame?
3. Does your entity conduct a periodic review to ensure all measures are installed?
4. How often does your entity evaluate the effectiveness of permanent freeze protection measures?
5. If your entity has any units with Corrective Action Plans in place instead of freeze protection measures?
 - a. How do you determine a reasonable time frame for:
 - i. Development of a Corrective Action Plan?
 - ii. Implementation of actions in the Corrective Action Plan?
 - b. How do you track the implementation of those actions?
 - c. Who approves updates to the Corrective Action Plans?

Control Activity B: Mitigate risk for Generator Cold Weather Constraints (Relates to risk associated with R8)

1. Does your entity benchmark freeze protection for comparable units and climate regions with other



entities?

2. How does your entity assess reasonable cost consistent with good business practice, reliability, or safety?
3. How does your entity ensure a declaration of Generator Cold Weather Constraints meets one of the currently acceptable criteria?
4. Who approves the declaration of a Generator Cold Weather Constraint?
5. Has your entity evaluated other criteria as a result of the FERC June 27 order that effectively directed changes to the current criteria?

Control Activity C: Perform maintenance and inspections (Relates to risk associated with R4)

1. Does your entity perform seasonal maintenance to prevent operating emergencies?
 - a. If so, how are maintenance needs identified?
 - b. If so, how is maintenance activity tracked?
2. Does your entity perform event-driven preventative maintenance?
 - a. If so, how are maintenance needs identified?
 - i. Is maintenance performed based on imminent events (e.g., weather predictions)?
 - ii. Are facilities inspected after emergencies to determine maintenance needs?
 - iii. What other events would trigger inspections or maintenance?
3. Are maintenance or inspection intervals decreased during extreme weather events?
4. Does your entity perform maintenance or inspections on equipment that are not designated as Generator Cold Weather Critical Components?
 - a. Do you inspect freeze protection measures on non-critical equipment?
 - b. Do you test communications equipment?

Control Objective 3: Ensure processes are in place to operate during cold weather emergencies (resiliency plans).

Control Activity A: Define roles and responsibilities.

1. How are roles and responsibilities defined?
 - a. Are roles and responsibilities specific by location?
 - b. Are roles and responsibilities specific to event types?
 - c. Do you consider SMEs from other departments, agencies, entities (including neighboring or those requiring interaction), or groups outside operations?

Control Activity B: Ensure personnel understand their roles and responsibilities. (Relates to risk associated with R5)

1. Does your entity have a formal training program?
 - a. Who provides the training?
 - b. How is training content determined?



- c. How is training delivered?
 - d. How are personnel identified for training?
 - e. How frequently do personnel receive training?
2. Does your entity provide training on cold weather emergency response to staff outside of operations?
3. If your entity has multiple units or types of units, is training specific to each unit?
4. Does your entity perform any QA/QC to confirm the training is effective?
5. How often is training content updated?
6. Does training take into consideration the recommendations from event reports as a result of cold weather emergency operations?
7. Does your entity conduct/participate in drills (internal and/or external)?
8. What resources/tools are in place for your entity's personnel to guide operations during cold weather emergencies? (e.g., checklists, decision trees)
 - a. Is guidance in place for triggering the plan(s)?
 - b. Have you defined what a cold weather operating emergency looks like?
 - c. Are playbooks or phone trees used for communication?
 - d. How do you ensure tools allow flexibility to adapt to unpredictable conditions?
 - e. Are contingency plans in place to account for emergency shutdowns and trips?

Control Activity C: Plan for personnel needs during cold weather operating emergencies.

1. Does your entity alter personnel schedules during events?
 - a. If so, how? (e.g., increased staffing levels, longer shifts)
2. What resources does your entity have on hand for personnel during cold weather operating emergencies? (e.g., food, living space, portable generators, heaters, etc.)
 - a. Have you considered dependent timelines? (e.g., supply delivery time, personnel travel time)
3. What safety protocols does your entity have in place for cold weather emergency operations? (Access, road or walkway clearing, etc.)
 - a. Are the protocols location-specific?
 - b. Are the protocols event-specific?

Control Activity D: Ensure processes are in place to monitor operations during a cold weather event.

1. What processes does your entity have in place to monitor weather conditions during an emergency?
2. What technology or processes are used to monitor equipment conditions during cold weather emergencies?
3. Does your entity conduct periodic inspections during the cold weather event to monitor the status of:
 - a. Freeze protection measures?
 - b. Personnel?



- c. Supplies?
- d. Fuel?
- e. Communications (both internal and external)?

Control Objective 4: Coordinate during cold weather emergencies.

Control Activity A: Coordinate with interconnected entities

1. Has your entity designated emergency coordination teams who do not have system reliability responsibilities to handle communications and coordination during cold weather operating emergencies?
 - a. If not, what is your practice for coordination during cold weather operating emergencies?
2. Does your entity perform any QA/QC to verify all appropriate entities were notified?

Control Activity B: Coordinate with vendors and suppliers.

1. Does your entity have plans in place to coordinate with fuel providers?
 - a. Do you have agreements in place with alternate fuel sources?
2. Does your entity have arrangements with local vendors for supply delivery and rental equipment?
 - a. Are the arrangements based on type or duration of events?

Control Activity C: Ensure contact lists are accessible during cold weather emergencies

1. How does your entity ensure contact lists (both internal and external) are up to date?
2. How does your entity ensure contact lists are available during a cold weather emergency?

Control Objective 5: Ensure processes are in place to return to normal operations.

Control Activity A: Identify roles and responsibilities for return to normal operations

1. Does your plan identify criteria to determine when the cold weather event is over?
2. Who is responsible to declare a return to normal operations?
 - a. To whom do they communicate this?
3. Has your entity defined processes, workflows, or communication trees based on event types or scenarios to aid in the return to normal operations?

Control Activity B: Inspect site for effects of the cold weather event

1. Does your entity have job aids to support the inspection of the site after a cold weather event? (e.g., checklist)
2. Does that job aid take duration of the event into consideration?
3. Does your entity inspect:
 - a. Equipment?
 - b. Supplies?
 - c. Personnel?
 - d. Freeze protection measures?



Control Objective 6: Review and update cold weather preparedness plan(s)

Control Activity A: Ensure lessons learned are incorporated into future cold weather preparedness plan(s) after events occur. (relates to risk associated with R6)

1. How does your entity identify and document causes of Generator Cold Weather Reliability Events?
 - a. Who participates in the review?
 - b. Do you use a formal root cause analysis process?
 - c. How do you determine applicability to similar equipment?
2. Does your entity have a post-event process to review all extreme cold weather events?
 - a. Are documents reviewed?
 - b. Are positive actions acknowledged?
 - c. Are lessons learned documented?
 - d. Are results communicated (locally and fleetwide)?
3. How does your entity track lessons learned and follow up on mitigation actions?

Control Activity B: Review and update ECWT and generating unit cold weather data. (Relates to risks associated with R1, R6)

1. How does your entity ensure ECWT and generating unit cold weather data are reviewed and updated at least once every five years for each unit?
 - a. Do you utilize a work order system or other technology solution to track this activity?
2. What events would trigger a review of the generating unit cold weather data?
 - a. Do you conduct a full review after each Generator Cold Weather Reliability Event?
 - b. Do you conduct a review after changes to:
 - i. Equipment
 - ii. Fuel supply contracts
 - iii. Freeze protection measures

Control Activity C: Review cold weather preparedness plan(s) (relates to risk associated with R6)

1. How does your entity ensure operating limitations or impacts to the cold weather preparedness plan resulting from Generator Cold Weather Reliability Events are incorporated into the plans?
 - a. If a Corrective Action Plan is developed in response to the Generator Cold Weather Reliability Event, how do you ensure the plan is updated when new freeze protection measures are implemented?
2. What criteria or guidelines does your entity employ to review cold weather preparedness plan(s)?
 - a. Do you update plans after all extreme cold weather events?
 - b. Do you update plans based on other triggers?
3. Who reviews your entity's cold weather preparedness plan(s)?
 - a. Subject matter experts?
 - b. Compliance personnel?



- c. Executive management?
- d. Peers?

Compliance Potential Failure Points

The control activities listed above are specifically targeted at mitigating risk to the reliability and security of the BES, but also promote compliance with the referenced standard. Your entity should also develop controls specifically to mitigate compliance risk. The following compliance potential failure points relate directly to compliance risk and warrant consideration.

Potential Failure Point (R1): Failure to calculate ECWT and identify generating unit cold weather data for each unit at least once every five years.

1. Does your entity have any controls in place to ensure data is updated at least once every five years?
2. How does your entity document the supporting analysis or data for these measures?

Potential Failure Point (R1): Failure to develop a Corrective Action Plan after recalculation of an ECWT requires actions to operate at the new ECWT.

1. How does your entity ensure Corrective Action Plans are developed timely?

Potential Failure Point (R2, R3): Failure to implement freeze protection measures that provide the capability to operate at the ECWT.

1. How does your entity analyze the effectiveness of the freeze protection measures at the ECWT?
2. What controls does your entity have in place to ensure freeze protection measures are reviewed for effectiveness when there has been a change to the ECWT?

Potential Failure Point (R2): Failure to assess the effectiveness of freeze protection measures with a concurrent 20 mph windspeed for 12 continuous hours.

Potential Failure Point (R4): Failure to implement cold weather preparedness plan(s) for generating units that include each of the elements outlined in R4.

1. How does your entity maintain the list of Generator Cold Weather Critical Components?
2. How does your entity ensure the cold weather preparedness plans are updated when there are changes to the elements outlined in R4?
3. How does your entity track maintenance and inspection activities?

Potential Failure Point (R5): Failure to provide training to your entity's maintenance or operations personnel responsible for implementing cold weather preparedness plan(s).

Potential Failure Point (R6): Failure to develop a Corrective Action Plan within 150 days or by July 1 of a Cold Weather Reliability Event.

1. How does your entity ensure Corrective Action Plans are developed timely?



EOP-012-2 Controls Guidance and Compliance Failure Points

2. How does your entity ensure the Corrective Action Plan includes all required elements in R6?

Potential Failure Point (R7): Failure to include all elements required in R7.1 in Corrective Action Plans.

Potential Failure Point (R7): Failure to implement a Corrective Action Plan as written according to the established timeline.

1. How does your entity ensure Corrective Action Plans are implemented as written?
2. How does your entity track Corrective Action Plan activities to ensure established due dates are met?
3. How does your entity ensure updates to the Corrective Action Plan and timetables are justified?

Potential Failure Point (R7): Failure to base Generator Cold Weather Constraints on reasonable judgment of good business practices, reliability, or safety.

1. How does your entity ensure declared Generator Cold Weather Constraints are based on reasonable judgment?

Potential Failure Point (R8): Failure to review the Generator Cold Weather Constraint declaration at least every five calendar years or as needed when a change of status to the Generator Cold Weather Constraint occurs.

1. How does your entity ensure constraint declarations are reviewed every 5 years?
2. How does your entity ensure the operating limitations associated with capability and availability under Requirement R1 Part R1.2 if applicable are updated?

