Western Interconnection Cold Weather Readiness Assessment

July 2025

In response to concerns about the reliability risks associated with cold weather, WECC has created an Assurance Program for entities across the Western Interconnection. Managed by WECC staff, the program is designed to help WECC and its stakeholders better understand these risks, while ensuring awareness of best practices and the resources available to mitigate the risks through industry organizations such as WICF, NAGF, NATF, WECC, NERC, and FERC.

The Assurance Program may also recommend improvements of policy, process, and procedures via documentation provided individually or globally for WECC's stakeholders. The program will include reviews of events (e.g., Winter Storm Elliott that took place in late 2022) and approaches that entities may be using in response to recommendations from the reports of said events. Note that, even though events occur outside of the Western Interconnection (or have a minimal impact on the Western Interconnection), there may be valuable recommendations in the event reports for entities to consider. FERC, NERC, and industry invest significant resources to publish an event report and taking advantage of the outcomes can be beneficial for those not directly involved in an event. WECC also will provide feedback to program participants to help benchmark practices and identify improvements from an interconnection-wide perspective.

To identify candidates (e.g., registered entities and entities pending registration) for the Assurance Program, WECC will use resources such as information from the Generating Availability Data System (GADS), responses to NERC Alerts, risks noted in the Reliability Risk Priorities, events, inherent risks (e.g., generation ownership by type and location), and report recommendations.

WECC would like to thank the registered entity staff members that have provided collaborative interactions for the program. We appreciate you all taking time out of your schedules to address the questions and work with the team throughout the process.

The Assurance Program is still in its infancy, and the limited interactions to date have been productive in developing an initial assessment. The team does have some initial observations, shared below, for the dedicated registered entities within the Western Interconnection to consider.

Western Interconnection Areas of Strength and Stand-Out Practices

1. Having a mature cold weather readiness program in place before any cold weather requirements. These approaches were based on reliable plant operations.
2. Exhibiting an attitude of continuous improvement by using various opportunities to strengthen their generator readiness program. A few examples include:
    a. Incorporating insights from industry disturbance reports, lessons learned, and being involved in industry forums and groups (SGAS, WICF, NAGF, etc.).

   b. Holding an end-of-season review focused on identifying additional actions that will strengthen the readiness program.
   c. Using information from all the plants in the organization's generation fleet to learn from challenges other plants have experienced.
3. Maintaining alarms in the control room on freeze protection measures (e.g., heat trace circuits, room thermostats, ambient air temperature and humidity sensors) with associated operator displays for quickly identifying issues.
4. Creating automatically generated cold weather work orders before the cold weather season. These included the associated expected completion dates. Some entities escalated visibility to upper management when these work orders were approaching the due date or became past due.
5. Executing practices to perform additional readiness checks when a cold weather storm is forecast.
6. One entity had the materials to make insulation wraps on site and did not have to rely on a third party.

Western Interconnection General Opportunities for Improvement

1. Some entities have developed Winter Preparedness Plans based mainly on meeting the requirements in Reliability Standards.
2. Several entities were not benefiting from opportunities for improvement available from outside their plant or organization (e.g., adjacent neighbors, Regional Entities, industry groups).
3. Several readiness plans lacked detail that would be useful for someone unfamiliar with the plan.
4. Lack of clear, consistent, documented approach for identifying Cold Weather Critical Components at the plant. Some entities had a reactive approach as to how components were identified for this list.

Overall Assessment

Although a thorough assessment of extreme cold weather preparedness throughout the Western Interconnection has not been conducted, numerous interactions between WECC staff and representatives of the registered entities have demonstrated dedicated efforts to remain operationally reliable during extreme cold weather. Sharing the practices that have been adopted, which this document reflects at a high level, is a foundational principle for the program. It is understood that some registered entities will have a stronger approach to mitigating the risk of operating in extreme cold temperatures. Largely, that robust approach is needed because of the geographical location of the plant. However, other entities should take note of the practices and conduct a thorough evaluation to see whether using those practices would be beneficial for their site. If it is unusually cold in southern subregions of the Western Interconnection due to a widespread extreme cold weather event that also affects the interconnection's northern subregions, there may be a more critical need for registered entities in the southern subregions to maintain operational reliability, as the ability to transfer electricity from the northern subregions would be limited or impossible.

This Assurance Program is predicated on gathering information in a variety of ways, including one-on-one site visits. As the program matures and increases its capability to gather data through other means, additional information will be added to this document as well as other extreme weather assessments.