



NERC Announcement: NERC Alert Posted: Recommendation to Industry | Cold Weather Preparations for Extreme Weather Events

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Recommendation to Industry

Cold Weather Preparations for Extreme Weather Events

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Two¹ extreme cold weather² events have occurred in the past four winter seasons. The February 2021 extreme cold weather event stressed the need to ensure the safe, resilient, and reliable operation of the Bulk Electric System. The recent extreme cold weather events across large portions of North America have highlighted the need to assess current operating practices and identify some recommended improvements, so that system operations personnel are better prepared to address these challenges. The events have caused major interruptions to resources, transmission paths and ultimately, end-use customers. This alert will assist in determining the winter readiness of Reliability Coordinators (RCs), Balancing Authorities (BAs), Transmission Operators (TOPs), and Generator Owners (GOs).

- NERC issued a “ *Cold Weather Preparations for Extreme Weather Events* “Level 2 Alert on 8/18/21 to Balancing Authorities (BAs), Generator Owners (GOs), Reliability Coordinators (RCs), and Transmission Operators (TOPs).
- The Alert consisted of 5 recommendations and many questions (one for RCs, three for BAs, three for TOPs, and 10 for GOs) to help prepare industry in advance of the 2021-2022 winter season.
- Initial acknowledgement of receipt was due 8/23/21 while responses to the questions were due 9/17/21 via the NERC Alert System.
- The balance of this presentation will focus on the content of the alert applicable to NYISO, responses submitted on 9/17/21, and related ongoing efforts.

Summary of Recommendations

- **Recommendation #1: RCs, BAs, and TOPs should create, or add to, seasonal operating plans with special emphasis on extreme cold weather events and energy requirements.**
 - Plans should include: Overall energy needs/constraints, resource startup time/ramping capability, import capability, load forecasting, transmission capacity, weatherization, temporary environmental regulation relief, communication protocols, gas/electric emergency coordination

NYISO Operations believes the “Winter 2021-2022 assessment/winter preparation” presentation with planned enhancements (e.g., 99/1 scenario, weekly energy analysis based on fuel survey results) addresses this recommendation.

Summary of Recommendations

- **Recommendation #2: GOs should review RCs, BAs, and TOPs seasonal operating plans. Actions should be taken to facilitate readiness and maximize the availability of the resources (including fuel supply and fuel switching).**

All GOs have the ability to review NYISO seasonal operating plans and should always maximize resource availability. NYISO GOs participate in Generator Fuel and Emissions Reporting (GFER) surveys addressing specific questions/concerns regarding fuel supply and fuel switching

- **Recommendation #3: GOs should communicate to RCs, BAs, and TOPs forecast and actual unit de-rates as part of seasonal, outage coordination, day-ahead, and real-time energy assessments. RCs, BAs, and TOPs should incorporate generation de-rates into energy assessments and operating plans.**

NYISO has many processes and procedures in place for GOs to provide derate and/or availability information across all time frames mentioned above (Outage Scheduling, GFER surveys, real-time de-rates). NYISO energy assessments and operating plans can/do take into account weather, fuel, de-rates, outages, historical performance, etc.

Summary of Recommendations

- **Recommendation #4: Manual and Automatic Load Shedding**
 - a. **RCs, BAs, and TOPs manual and automatic load shedding plans should avoid critical interdependent sub-sector electrical loads.**

NYISO instituted a coordination effort in the spring of 2021 with the natural gas industry (LDCs and pipelines) in New York to identify critical gas-electric infrastructure. The survey has been completed by 15 of 19 companies and resulted in 83 assets/facilities being identified and communicated to the applicable Transmission/Distribution Operator.

- b. **RCs, BAs, and TOPs should confirm and test manual load shedding processes and capability periodically, update with load forecasts, and monitor when executed.**

NYISO Operations led an effort with the Transmission Owner Planning Working Group (TOPWG) to review manual and automatic load shedding processes/procedures while also considering the impact of critical gas-electric infrastructure.

Summary of Recommendations

- Recommendation #4: Manual and Automatic Load Shedding (continued)

c. RCs, BAs, and TOPs should track demand response capability and verify that critical interdependent sub-sector loads are excluded while plans account for duration/magnitude limitations.

It is the NYISO's assessment that curtailment of critical interdependent sub-sector loads poses a risk to reliability, and therefore, consistent with the recent NERC recommendation, such load curtailment should be excluded from NYISO DR programs. Distributed Resources Operations is reaching out to Special Case Resource (SCR) program, Emergency Demand Response Program (EDRP), and Demand-Side Ancillary Services Program (DSASP) participants to determine current participation of critical interdependent sub-sector loads in the NYISO DR programs.

Summary of Recommendations

- **Recommendation #5: GOs should conduct dual fuel assessments to ensure resources can switch to alternate fuel and monitor alternate fuel on site inventory levels. GOs should also assess generating unit weatherization plans, freeze protection, and factors that could impact availability (minimum operating temperature, application of heat tracing equipment, and wind breaks). GOs should inspect and maintain their weatherization measures ahead of the upcoming winter season, before the onset of, and during extreme cold weather conditions.**

NYISO facilitates dual fuel testing in conjunction with NYSRC LOG requirements/MOB program and monitors stored fuel inventories via the GFER survey process. Every year NYISO coordinates with many generating stations (remote vs. on-site this year due to COVID-19) to discuss past winter operations and preparations for upcoming winter, including generator testing, cold-weather preventative maintenance, fuel capabilities, and fuel switching.

Summary of Questions

- **This question was addressed to RCs, BAs, and TOPs**

1) Has your organization developed Operating Plans that are closer to real-time (2-3 days ahead)? – **A. Yes**

1a) Does/will it include plans: i) to address cancellation of outages, generator starting and operating forecasts, as well as ramping requirements, ii) that are communicated/coordinated with neighbors/BAs/RCs, etc., iii) implementation in a forward-looking three week plan, iv) that evaluate, and use, an after-action review to identify additional transfer capabilities, v) stability-based import limits determined by real-time tools, vi) operational limitations of your generation facilities – **B. Yes, we include/will include some of these points**

Additional BA specific questions: i) to meet any gap in energy between real-time forecast load and the day-ahead physical energy supply. ii) on operating reserves for fast-start and fast-ramping generation contingency response, iii) to replace energy throughout a long duration supply loss/unanticipated increase in demand - **A. Yes, we include/will include some of these points**

Summary of Questions

- This question was addressed to BAs and TOPs

- 1) Does your organization conduct a seasonal energy and capacity assessment for normal and extreme cold scenarios at least two months prior to the winter season? – B. No, however we plan to conduct such as assessment
- 2) Has your organization analyzed electric import capability for widespread, extreme, multi-day weather events and determined what conditions emergency transfer capability can be used to increase imports, taking into account BAs and RCs ability to provide aid. – A. Yes, we have performed this analysis

Additional TOP specific questions: i) Are stability-based import limits determined using real-time tools and ii) Evaluate/consider the use of ambient temperature adjusted limits on all transmission facilities where the conductor rating is the limitation. – C. We have performed, or plan to perform, a partial analysis – taking into account some or all of these factors, and/or including some, or all of, the assets in our system

- The largest driver for selecting this answer is due to ambient adjusted ratings in the winter (winter ratings don't currently allow for additional rerates, although NYISO has the capability to accept them if provided in real time by the TOs.)

Summary of Questions

- **These questions were addressed to TOPs**

- 1) Does your organization conduct transmission system seasonal assessments including weatherization of substations and equipment, maintenance and testing of voltage reduction equipment, assessment of transmission and generation outages and transfer capabilities during those outages that could limit transfer capability and/or resource availability - **C. We have performed, or plan to perform, a partial analysis – taking into account some or all of these factors, and/or including some, or all of, the assets in our system**
 - The largest driver for selecting this answer is the fact that a significant amount of the actions above are determined by the asset owner.

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

