

Cold Weather Resource Performance Improvement

Includes Problem/Opportunity Statement

During the January 2014 "Polar Vortex," PJM experienced extreme cold temperatures in its region that required the use of emergency procedures on multiple days to maintain adequate supply to meet the demand and reserve needs of the system. Coincident with the cold weather and high demand, generator forced outages and failures to start were significantly higher than expected; as high as 22% (~40,000 MW) during the January 6 – 8, 2014 operating days. PJM's Emergency Operations Manual M13, Section 3.3 includes a chart of potential generation unavailability due to cold weather based on historical performance; however the forced outage rates in January 2014 exceeded these estimates by greater than 200%. As documented in the [FERC/NERC Report on Outages and Curtailments During the Southwest Cold Weather Event of February 1-5, 2011](http://www.nerc.com/files/SW_Cold_Weather_Event_Final_Report.pdf) (http://www.nerc.com/files/SW_Cold_Weather_Event_Final_Report.pdf), similar problems led to shedding of firm load and "rolling blackouts" in the ERCOT area.

PJM believes that improvements in the performance of resources during extreme cold weather events is necessary and some level of performance verification or testing of certain resources during cold weather should be implemented.

Issue Source

January 2014 "Polar Vortex"

Stakeholder Group Assignment

This issue will be addressed by the Operating Committee as part of its existing chartered responsibilities related to the overall operating reliability of the PJM bulk power supply facilities.

Key Work Activities

1. Review data on the PJM "Polar Vortex" event including items such as outage code analysis, fuel availability problems, effects on eFORd & eFORp, effects on energy market, etc.
2. Provide education on best practices for cold weather preparation and resource verification/testing requirements from other geographic areas such as ISO-NE, NYISO, and northern Midwestern states. Include a review of Southwest Cold Weather Event of February, 2011.
3. Review prior requirements for generator winter capability testing and associated exemption programs.
4. Investigate need to develop verification/testing requirements to ensure that resources such as traditional generation, variable generation, demand response and those that operate infrequently and/or have alternate fuel capability are prepared to operate during extreme cold weather conditions.
5. Consider guidelines for the use of a cold weather preparation checklist.
6. If necessary, draft required Manual changes and, if needed, Tariff, Operating Agreement, and/or RAA changes to implement any new requirements for resource verification/testing under cold weather conditions.



7. Coordinate any proposed changes with PJM Markets to ensure an equitable transition to any new resource verification/testing requirements.

Expected Deliverables

1. Manual changes and potential Tariff/OA/RAA changes that establish cold weather verification/testing procedures for the applicable PJM resources.

Expected Overall Duration of Work

The goal is to have the cold weather resource verification/ testing requirements implemented prior to October 1, 2014.

Decision-Making Method

The decision-making method for this issue should be Tier 1, consensus (unanimity) on a single proposal (preferred default option), or Tier 2, multiple alternatives.