

Events Analysis Regional Insights or NERC Lessons Learned Review

Prepared by Task Force/Working Group TFCO

Date: 2014

<p>Regional Insights(Regional LLs) or NERC Lessons Learned reviewed :</p>	<p>Description: NERC Lesson Learned: <u>Adequate Maintenance and Inspection of Generator Freeze Protection</u></p>
<p>Describe Area of Concern Addressed:</p>	<p><u>Adequate Maintenance and Inspection of Generator Freeze Protection</u> Event Description: Generator freeze protection.</p> <p>The Generator Owner (GO) and Generator Operator (GOP) of a large combined cycle gas turbine (CCGT) plant consisting of four units with a generation output of over 950 Mw did not prepare properly for extreme winter weather which resulted in the forced outages of the units at the plant and contributed to a Balancing Authority having to shed load.</p> <p>Corrective The plant management re-evaluated its winter preparation program to give priority to the identification of the plant’s vital equipment freezing points which could cause units to trip off offline and is implementing solutions to ensure the plant could operate to its designed minimum ambient operating temperature.</p> <p>Lessons Learned:</p> <p>Before winter, GOs/GOPs should review their plans to ensure their plants can operate reliably and safely at the plant’s design minimum ambient temperature which is one degree above the temperature at which installed and operating winterization equipment is no longer effective in preventing cold weather operational problems. If they do not know this minimum temperature, they should perform a comprehensive engineering design analysis to determine it. Although all plants may not need to actually perform pre-winter winterization due to normal winter weather, they should consider the most extreme historical weather conditions they may possibly encounter and have contingency plans in place to immediately implement when necessary. Plans should be in place, operators trained and the necessary material on site to be able to handle those extreme events.</p>

<p>TF / WG Action Taken(if any): No Action required-</p>	<p>Action Taken – The TFCO reviewed the NERC lesson learned and concurred with its findings. It should be noted that all of the NPCC RCs are in areas of North America that routinely experience very cold weather and icing and snow conditions</p>
<p>Identify Similar Experience (if applicable):</p>	<p>Considered part of routine pre-winter preparation activities for the NPCC BAs / TOs / Generators. NPCC includes entities where very cold winter temperatures and adverse winter weather conditions are commonplace and extensive preparation is always required. Generally, new units are designed and built to withstand the rigors of winters within the NPCC region. However, on occasion new units must go through a shakedown period and continuously evaluate their performance during the initial stages of cold weather operations that the resource experiences. Finally, although the RCs and BAs can provide lessons learned, incent availability, monitor performance and prepare for losses, it is up to each Generator Owner and Operator to ensure that they can meet the rigors of severe weather.</p>
<p>State Any Supplemental Insights (i.e. any additional lessons that were learned from other experiences or those that can be seen within the existing LL but were missed.)</p>	<p>NPCC generator and substation equipment designs consider extreme temperatures and adverse weather conditions.</p> <p>The most recent CO12 report (see link here: https://www.npcc.org/Library/Seasonal%20Assessment/2014-2015_Winter_NPCC%20Seasonal%20Assessment%20Report-Final_20141202.pdf) on winter readiness establishes that each RC area expects to be prepared for the upcoming winter. Many areas are also tracking and incenting dual fuel capability and fuel storage to prepare for the winter. In addition, a pre winter readiness seminar has been held in New England where the generator operators were advised of past lessons learned for winter readiness and the preparations that GOs should be undertaking to prepare resources for the winter.</p> <p>NPCC’s, winter assessments consider a wide range of scenarios through the application of probabilistic methods, including weather conditions derived from over 40 years of data, unexpected generating plant outages, transmission constraints between and within areas, delays in expected in-service dates of planned facilities, the potential for some natural gas generators to be temporarily unavailable during cold or extreme winter conditions as well as shifts in consumer electricity usage.</p>
<p>As a result of this review, has a Reliability Gap been Identified in a NERC Standard or an NPCC Criterion or Guideline?</p>	<p>No</p>

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Where additional specificity can be added to existing NPCC Criteria, Guidelines or procedures, cite reference and propose addition or change :	No
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