

FERC Reliability Technical Conference -- Panel IV Other Issues

Remarks of Michael Moon

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Chairman Wellinghoff, Commissioners, Staff and fellow panelists. NERC and its stakeholders share a common purpose for the Electric Reliability Organization (ERO) to ensure the reliability of the bulk power system of North America and promote reliability excellence and accountability. The Event Analysis program is a fundamental and critical component to support the ERO. It achieves this by providing insight and guidance through the identification and dissemination of valuable information to owners, operators and users of the bulk power system. The high level of stakeholder commitment to learning after events and striving to go above and beyond the standards to achieve the highest level of reliability is a primary foundation of this program.

Today, I will provide an update on the implementation and challenges of report recommendations from two significant events: the February 2011 Cold Weather Event and the September 2011 Southwest Blackout. I also will provide a status on the event analysis and lessons learned program to support the active learning and sharing among the electricity industry in North America.

It is important to view the aforementioned events and follow-on actions through the lens of the evolving Event Analysis program at NERC, which was bolstered following a field trial in October 2010. NERC staff, working closely with stakeholders, developed a more proactive role for industry, including analysis of low-level events to identify precursor actions to major events. This refocused effort was evident in the conduct of inquiries following the Cold Weather and Southwest Blackout events and the production of the event reports. I would like to commend the positive working relationship between the FERC and NERC staff during this process. With a concerted effort on understanding the what, why and how of an event followed by information delivered to the industry, reliability was well served.

Since the enhanced Event Analysis program began in 2010, approximately 307 categorized events have occurred, been reported and cause coded. This facilitated the identification of several discrete reliability risks, including a material deficiency in a specific 345kV circuit breaker, the mis-wiring of a high-speed hybrid port on certain relays, management challenges in job scoping and software and hardware issues in energy management systems. These specific issues relate to two of NERC's highest priority reliability risks, relay misoperations and workforce capability and human error. As appropriate, lessons learned, alerts and

advisories are produced and shared to inform the industry of the issue and provide remediation and intervention strategies and actions.

In the case of the Southwest Blackout and the Cold Weather events, the reports produced are now reference documents used by the ERO and across the industry. In both cases, the cooperation of the industry in collecting, analyzing and sharing information was significant; industry had a clear focus on learning and addressing risks to reliability. While initial actions based on the recommendations and lessons learned from the event have occurred, follow-on activities continue at NERC, the Regional Entities and throughout the industry in a deliberate and methodical manner.

Cold Weather Event

FERC and NERC released a staff report¹ on the Cold Weather Event of February 1-5, 2011. The report detailed 26 recommendations for the electricity industry. Thirteen targeted lessons learned² were published over the course of a year beginning in September of 2011. These lessons learned covered a range of critical functions from staffing, design, maintenance, operations and training.

In December of 2012, NERC staff requested the five southern regions (FRCC, SERC, SPP, TRE and WECC) to survey their members on actions taken to address the 26 recommendations from the report. The regional surveys requested targeted information from generator owners and operators and from transmission owners and operators. The surveys focused on winter preparedness, what entities were doing to improve processes, procedures and coordination as a result of the Cold Weather Event and subsequent lessons learned. Information on specific equipment preparedness was also requested. Industry response was used to assess the adequacy of cold weather preparedness of registered entities to maintain bulk power system reliability during upcoming winter season and inform NERC's next steps.

In December 2012 and January 2013, NERC event analysis staff conducted an industry webinar on the recommendations outlined in the report and presented preliminary information on lessons learned. To support continued vigilance on this issue, NERC staff, along with the combined Regional Entity and stakeholder Event Analysis Subcommittee, will conduct annual webinars to remind the industry of appropriately assessing the upcoming winter weather forecasts and entity preparedness.

In addition, NERC staff conducted a system analysis of the Cold Weather Event and provided a report³ which was also referenced in the Winter Reliability Assessment 2011/2012. Significant conclusions from

¹http://www.nerc.com/pa/rrm/ea/February%202011%20Southwest%20Cold%20Weather%20Event/SW_Cold_Weather_Event_Final.pdf

²<http://www.nerc.com/pa/rrm/ea/Pages/February-2011-Southwest-Cold-Weather-Event.aspx>

³<http://www.nerc.com/files/RISA%20Cold%20Snap%20report%20September%202011.pdf>

this report indicate that several entities took appropriate action to maintain system stability and that frequency response during this event was in the range of normal performance.

Finally, in February 2013, the NERC Operating Committee also drafted and published an extensive Reliability Guideline “Generating Unit Winter Weather Readiness – Current Industry Practices.”⁴ This guideline provides a comprehensive and detailed attachment that lists elements of a winter weather preparation procedure. Despite the guideline stating the incorporation of these practices is voluntary the NERC OC continued on to “highly encourage these use of these practices to promote and achieve the highest levels of reliability for these high impact weather events.” These practices clearly support all of the 26 recommendations of the report. Coupling these guidelines with the aforementioned annual webinars will reinforce industry action.

Southwest Blackout Event

On May 1, 2012, the FERC and NERC issued a joint report on the September 8, 2011, Southwest blackout event. The report contained 27 recommendations covering a broad range of topics in planning, operations and situational awareness. While the recommendations were directed at the entities central to the outage, NERC proactively requested each Regional Entity to consider the recommendations and report on activities in this Region. My fellow panelist, Melanie Frye of WECC has been involved with specific actions being taken in that region. NERC technical committees were also requested to review specific recommendations. Areas of focus include improved monitoring and situational awareness, communication and coordination for operations, planning and analysis of protection systems. I would like to outline a few examples of where these issues are being addressed at NERC.

In the area of protection systems the NERC Planning Committee in April 2013 completed a technical paper “Special Protection Systems (SPS) and Remedial Action Schemes (RAS): Assessment of Definition, Regional Practices, and Application of Related Standards and first annual “Misoperations Report.” Both of these reports were undertaken to analyze one of the top reliability issues, and they have direct applicability to major events and disturbances, such as the Southwest Blackout event where recommendations 19 – 26 address multiple issues related to protection systems. These reports will be utilized to support the efforts of several existing standards projects.

A significant focus area from the Southwest Blackout event and one of the high priority reliability risk areas identified by the NERC Reliability Issues Steering Committee is monitoring and situational awareness. Recommendations 11 – 16 of the Southwest Blackout event cover a broad range of situational awareness issues, including: real-time visibility of external systems; adequacy of real-time tools; reliance on post-contingency mitigation measures; communicating the need for backup when Real-Time Contingency Analysis (RTCA) capabilities are lost or impaired; and inconsistencies between real-time and planning models. The NERC Operating Committee’s Operating Reliability Subcommittee completed a

⁴http://www.nerc.com/comm/OC/Reliability%20Guideline%20DL/Generating_Unit_Winter_Weather_Readiness_final.pdf

review of the Real Time Tools Best Practices Task Force report, finding that it provides well thought out best practices that the industry should consider when developing their tools and practices.

The industry should continue to use the report as a reference and it should be reviewed periodically for inclusion of new technology and capabilities. This report is a reference document for the standards project 2009-02 Real-time Reliability Monitoring and Analysis Capabilities beginning informal development.

From the Southwest Blackout event, two recommendations directly relate to real-time tools and actions of operators to maintain situational awareness. Recommendation 12: TOPs should take measures to ensure that their real-time tools are adequate, operational, and run frequently enough to provide their operators the situational awareness necessary to identify and plan for contingencies and reliably operate their systems. Recommendation 15: TOPs should ensure procedures and training are in place to notify WECC RC and neighboring TOPs and BAs promptly after losing RTCA capabilities.

NERC event analysis staff has also conducted analysis of approximately 60 event reports since 2010 related to energy management system (EMS) outages to support efforts to improve situational awareness. Common themes in this analysis of EMS outages include: Software Failures, Software Configuration/Installation/Maintenance Challenges, Hardware Failures, Hardware Configuration/Installation Maintenance, Failover Testing Weaknesses and Testing Inadequacies.

The EMS outage analysis also identified the significant actions industry is taking to maintain communication and coordination and thus reliability. These include: communicating with neighbors, plant operators and reliability coordinators, directing plants to take local control with adjustment instructions to meet ramps, contacting neighboring utilities to check tie flows, calculating ACE manually and making generation adjustments through periodic phone calls to plants, monitoring of contingencies by communicating with reliability coordinators and neighbors, dispatching field personnel to staff critical substations, dispatching relief system coordinators to back up control centers, monitoring of critical system parameters using alternate means and contacting the vendors and partnering to identify and fix the problems.

Both registered entities and various stakeholder groups in all regions are working on issues with long-term projects in progress. Many of these efforts will come to fruition in late 2013 and into 2014.

There are no significant obstacles in implementing recommendations across the industry. However, the volume of data, its validation and the time required for coordination and collaboration for the significant inter-related actions of registered entities necessitates long range efforts on the part of the regions and industry to effectuate the desired review and changes. Several regions and their stakeholder committees have projected completion dates of some of the more significant projects in 2014.

The Event Analysis program and Reliability Assessment function is as critical to the reliability efforts of the ERO as the NERC Reliability Standards and Compliance Monitoring and Enforcement Program. The ability to learn, develop sound recommendations and lessons learned are the fastest way to proactively inform the industry of reliability risks and provide positive steps to improve reliability. The continued encouragement of collaboration and voluntary disclosure of events and disturbances by registered entities of lower categorized events is critical to this rapid learning and reliability focus. This approach to reliability is similar to the approach to safety in the commercial aviation community as regulated by the Federal Aviation Administration, which has essentially the same three core functions, writing regulations, enforcing the regulations and identifying risks early to preclude major tragedies. The ability to track lessons learned and measure impact is still maturing. NERC recently began adding a survey capability to published lessons learned in order to better gauge the industry use of and value of these publications.

In conclusion, although there is still much work to be done, we have established a solid foundation to learn from events and disturbances, to identify reliability risks and, ultimately, to enhance reliability efforts. I am confident that the direction of the enhanced Event Analysis program, together with a focused effort on using the large event report recommendations to inform long-range effort and planning is gaining momentum and we will achieve our ultimate purpose to ensure the reliability of the North American bulk power system.

I wish to thank the Commission for their invitation and attention. I look forward to our discussions on follow-on activities to the major 2011 event report recommendations and the Event Analysis program.