SPP Regional Trustee Update

December 2010
NERC Planning Committee

January 24, 2011

SUNFLOWER ELECTRIC POWER CORPORATION
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Comments by Gerry Cauley and Janice Case

- NERC has signed a new lease for Atlanta office space, move is progressing
- NERC reports are being pick-up and the information used by Congress, FERC and others outside the industry
  - This requires caution, information needs to be correct and provided in an independent manner
- NERC continues to be in conversation with FERC commission and staff
- Standards need to move forward and focus on results based reliability
- Event Analysis is seen as a way to move the industry forward; focused on reliability, learning and results based
- NERC committees need to be forward focused and implement items that bring value and use resources effectively, PC needs to be empowered to get things done.
- BOT is focused on reliability and their key issues are:
  - Standards must be correct, crisp, clear, enforceable and be limited in number
  - Cyber Security is a highly visible issue (at FERC and in Congress) and is viewed as important

Critical Infrastructure Strategic Initiatives Action Plan

- Severe Impact Resilience Task Force (SIRTF)
  - SIRTF will contribute efforts to enhance the ability of the bulk power system to withstand and recover from the three severe impact events as described in the Coordinated Action Plan. The SIRTF will report to the Operating Committee, who will approve its scope.
- Cyber Attack Task Force (Attachment 2)
  - The purpose of the Cyber Attack Task Force (CATF) is to consider the impact of a coordinated cyber attack on the reliable operation of the bulk power system, and identify opportunities to enhance existing protection, resilience, and recovery capabilities. The CATF will report to the Critical Infrastructure Protection Committee, who will approve its scope.
- NERC is requesting comments on both scopes
  - Both scopes include recovery so we need to not double up on the overall work and adjust the scopes accordingly
- The approval of the scopes in the December meeting will be for formation of the groups with the intent to adjust and reapprove the scopes in March. (i.e. directional approval)

System Modeling Initiative Update

- 2003 Black Out recommendation – Improve system modeling data and data exchange practices
- 33 – Unexpected generator turbine control actions
  - 29 in 8 events since August 2007
- 13 – Voltage sensitivity events on generation auxiliary power systems
- Problem: **THESE BEHAVIORS ARE NOT MODELED OR STUDIED**
- Models are very important / many things are driven from the models
- New Modeling and Enhancements Needed
  - NERC will push for the discloser of modeling data for independent generators
  - Many turbine controls (controls within the Power Plant – non-governor) are not modeled
  - Load modeling is now becoming an issue; Dynamic vs. Static
  - Far more complex dynamic load models needed to analyze and predict FIDVR (Fault- Induced Delayed Voltage Recovery) behavior
  - Better governor, SPS/RAS and new power electronic device models
- Mid-term Dynamics
  - LTCs and Turbine/Boiler Control Dynamics
  - Generator over-speed and power-load unbalance protection
  - Frequency Response controls interactions
  - RAS/SPS operations and interactions

Frequency Response Initiative

- The Frequency Response Initiative has multiple objectives:
  - Coordinate all NERC standards development and performance analysis activities related to frequency response and control
  - Identify specific frequency-related reliability factors
  - Identify root causes of changes in frequency response
  - Identify practices and methods to address root causes
  - Consider impacts of integration of new generation technologies (such as wind, solar, and significant nuclear expansion)
  - Develop metrics and benchmarks to improve frequency response performance tracking
  - Share lessons learned with the industry via outreach, alerts, and Webinars
  - Determine if performance-based frequency response standards are warranted
- NERC participated in the FERC Technical Conference on Frequency Response.
  - The conference focused on the technical aspects of frequency response and potential methods of addressing those technical issues on an interconnection wide basis.
- Consistent with FERC Order, NERC filed plans for addressing modifications of the BAL-003 Standard.
  - NERC's goal is to complete the standards development process by March 1, 2012 so that the proposed BAL-003-1 Reliability Standard can be presented to the NERC BOT for adoption and filed for approval by May 2012.

Frequency Response Initiative

- The Frequency Response drafting team is planning to conduct a field trial to evaluate the interconnection Frequency Response obligation for use in the proposed BAL-003-1 Reliability Standard.
- The field trial is anticipated to begin in May 2011 and will last for approximately five to eight months.
- Alert Recommendations
  - A Frequency Response Survey was sent to Balancing Authorities on September 14, 2010, calling for Balancing Authorities to document their frequency response for events in late-2008 and 2009.
- Generator Governor Survey – Sent to GOs and GOPs
  - The survey requested detailed information and operational settings for generator governors for all units 20 MVA and above or plants that aggregate to a total of 75 MVA or greater net rating at the point of interconnection
- Developing a List of Consistent Terminology
- Proposing an Automated Frequency Event Detection and Data Collection System
- Much more detail contained in status report!

NERC Alerts

- Over-arching objective, demonstrate prudent steps to address issues and enhance reliability
- Highly technical reliability matters are at issue
- Complex resolution/mitigation proposals, involving complex reliability interactions
- Balance among competing priorities, resources, and focus
- Limited process/transparency for validating/refining Alerts
- Priorities/focus
  - Technical validation of complex reliability issues
  - Implementation/resolution feasibility/options
  - Interim reliability, congestion, supply management
  - Timeline/milestones
  - Strategic balance with technical reliability goals
  - Enhance validation process and transparency
  - Utilize technical committee expertise
  - Interaction among NERC-Technical committees
- Factors/deliverables:
  - Efficient process sequencing/timing for 'urgent' action
  - Alignment with NERC – industry – FERC perspectives
  - ALR and Integrated Risk Matrix
  - Process certainty and transparency, good use of resources
- The plan is for the NERC Executive Committee to develop a proposal to bring back to the PC during the March meeting.

NERC-wide definition of the Bulk Electric System

- NERC has developed a concept document addressing technical considerations for a common NERC-wide definition of the Bulk Electric System to address the FERC NOPR
- NERC requested a regional group to develop a definition – 12 months
  - FRCC, WECC and NPCC participated
- The group has proposed a SAR based on the concept document
  - 100-kV and higher facilities
  - Allow for exemptions for facilities greater than 100-kV and facilities that are radial
  - Allow for inclusion of facilities below 100-kV
  - The SAR was submitted to standards Committee on 12/8/10
  - Posted for 30 day comment
  - Currently soliciting drafting team members
- 20 plus continent wide standards use this definition plus 12 definitions that use BES

Reliability Assessment

- The RAS has identified three potential scenario assessments for 2011.
  - Changing Fuel Mix Reliability Considerations
  - Reliability Assessment on EPA Combined Rules, Phase II
  - Dependence on Natural Gas
- The RAS proposed to change the report to align with RTO market areas for future Reliability Assessments.
  - There will not be any double counting of information in the NERC reports when RTO and reliability regions do not align
- PC approved to move forward with the proposals

Task Force Reports

- G&T Reliability Planning Models Task Force
  - The PC approved "The revised the Metrics and Methodology document"
  - The approval required that the revisions to document be consistent with the RAS report (combining the reporting areas)
  - PC approved the disbanding of the G&T Reliability Models Task Force.

- Integration of Variable Generation Task Force (IVGTF
  - Approved the report "Potential Reliability Impacts of Emerging Flexible Generation"
    - This report will not go to the BOT but will be added to the library of information.
  - The IVGTF requested comments on the report "Methods to Model and Calculate Capacity Contributions of Variable Generation for Resource Adequacy Planning"

- Model Validation Task Force
  - Approve the "Power System Model Validation White Paper", including its associated work plan (Appendix C in the white paper).
  - General concern on the amount of resources and lack thereof on the quality of data and results
  - Requested the Task Force to focus on the highest priority items first
  - Overall concern that on the level of effort and resources necessary to complete this effort

Task Force Reports

- System Protection and Control Subcommittee
  - Approved the posting the reliability guideline, “Transmission System Phase Backup Protection” for industry comment.
    - This is a guideline not a standard
    - Concern that that there is not a definition of what is a large autotransformer
  - Approved the “Reliability Fundamentals of System Protection” report
- Transmission Availability Data Systems Working Group
  - Approve the recommendation to change the TADS Event Type Number data collection beginning with calendar year 2012 data
    - This item will expand the information collected through the TADS system by expanding the number of event categories, beginning in 2012, that are used for classification of events. The current system resulted in ~ 25% of events being classified as ‘other’ with no capability of drilling down past ‘other’
- Smart Grid Task Force
  - Approve revised SGTF scope

Event Analysis Update

- Goal of Event Analysis Process
  - 1: Promoting BPS Reliability
  - 2: Develop Behavior / Cultural of
    - Enhance / Refine "Reliability Excellence"
    - Collaboration (ERO-wide)
    - Promote "Learning Organization"
- Initial Results from Field Test indicate that:
  - Improvement "opportunities" (improvements) are being identified
    - Improve process document
    - Improve overall coordination
  - Top "opportunities"
    - Improve Category definitions
    - Complete and timely reporting
    - Communications

Event Analysis Update

- Field Trial Events from Oct 25 to Nov 23
- 5 of 8 regions reported no events
- Remaining 3 regions
  - reported 14 events
    - 3 Cats – TBD
    - 2 - Cat 0
    - 3- Cat 1
    - 4 - Cat 2
    - 2 - Cat 3
- Themes of the Events
  - Generation loss
  - EMS loss
  - Control room evacuation
  - Islanding

Event Analysis Update

- Next Steps
  - Events analysis completion’
  - Discrete lessons learned
  - Communication of themes
  - January 2011 – Process adjustments
  - Nov 2011 – Required changes implemented and process approved.