



NORTHEAST POWER COORDINATING COUNCIL, INC.
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Date: November 17, 2016

To: NPCC Member Representatives
Harvey Reed, Chairman NPCC BOD
Edward Schwerdt, NPCC President and CEO

From: Guy V. Zito
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Chairman Regional Standards Committee

Subject: Regional Standards Committee (RSC)
2016 Report for the Annual Meeting of the NPCC Member
Representatives

The RSC submits its report on the following high priority items which are also consistent with the NERC 2016 Board of Trustees (BOT) approved Strategic Plans and NPCC Business Plan and Budget:

1. The NPCC RSC and staff have been increasing engaged in NERC Standards Development Projects through the development process and beyond. NPCC participated in discussions and FERC pre-filing meetings with NERC during a number of projects, most notably the PRC-012-2. This project involved the revision of the Remedial Action Scheme standard. This is a potentially very impactful standard to NPCC's members and coordination between the NPCC Task Forces, NERC and FERC was critical to achieve a cost effective, results based standard that yielded a standard that would leverage NPCC's existing processes and result in a standard that would support reliability.
2. The RSC, through NPCC Standards Staff, has been providing input into the NERC Enhanced Periodic Review Standing Team. This effort is evaluating sets of standards and grading them based on quality and content to determine prioritization for the next version of the NERC Reliability Standards Development Plan. NPCC has mobilized input from the other eight regions in the areas of Compliance, Event Analysis, and Reliability and Performance Analysis to provide input. This first grading exercise appeared in the 2017-2019 NERC Reliability Standards Development Plan.
3. NPCC and the RSC continue to promote the development of a NERC "cost" of standards implementation analysis process through 2016 into 2017 and provide support as needed. NPCC and NERC staffs are leading an effort on behalf of the NERC Standards Committee (SC) to develop a Cost of Risk Reduction Analysis (CRRA). The CRRA/cost effectiveness precepts are based on needs expressed by NERC senior management and identified by the industry as well as ongoing concerns expressed by the NPCC Board of Directors. The first draft of the CRRA has been developed and is currently being piloted

on the “Single Points of Failure” standard development Project 2015-10, Single Points of Failure – a revision to TPL-001-4. There are a number of projects NERC is undertaking next year and further pilots will be conducted in an attempt to more broadly apply cost evaluation considerations and concepts to developing standards. Results of the pilot will be provided to the industry as the reports are completed.

The NERC CEAP (CRRA) Project page contains all historical developmental records of the draft document and may be found on the NERC website at the following link:

[NERC Cost Effectiveness Project Page](#)

4. Continue to consider and refine processes around further implementation of the NPCC Regional Standards Processes Manual (RSPM) as may be necessary to address any NERC and FERC audit findings as well as Performance Assessment findings.
5. The NPCC Board of Directors approved the retirement of the NPCC Regional Standard for Disturbance Monitoring PRC-002-NPCC-1 at their March 23, 2016 teleconference meeting. Subsequently, on May 5th, 2016 the NERC BOT also approved the retirement proposal. The FERC approval of the continent-wide NERC PRC-002-2 Disturbance Monitoring and Reporting Requirements Standard and its enforceable date of July 1, 2016 will render the Regional Standard unnecessary. NPCC Staff and NERC legal coordinated the development of the petition and filing(s) to FERC and the Provincial Regulatory Authorities as well as timing for the retirement and associated technical justifications. FERC issued an approval letter for the retirement of Regional Reliability Standard PRC-002-NPCC-01 (Disturbance Monitoring) on August 16, 2016. In conjunction, the Task Force on System Protection (TFSP) completed the development and approval by the NPCC Full Member Committee of NPCC Directory #11 Disturbance Monitoring Equipment Criteria.

Directory#11 will augment PRC-002-2 *Disturbance Monitoring and Reporting Requirements* and guide the effective application of equipment necessary to capture the data required by the NERC standard. Its development was instrumental in obtaining approvals from the Federal Energy Regulatory Commission for the retirement of PRC-002-NPCC-1.

6. Represent NPCC and promulgate any significant regional concerns during standards development at the NERC Standards Committee and in the individual NERC Standards Drafting Teams.
7. RSC will be assuming the review of the results of the Enhanced Periodic Reviews (EPR) and commenting when appropriate. NPCC Staff will be representing the regions on an EPR Standing Review Team which will also consist of the Chair of the SC, OC, PC and CIPC along with NERC Staff.
8. The NERC BOT has directed NERC through the EPR to review and grade all existing NERC continent wide standards which have been in effect (enforceable) for a year or longer. NPCC RSC will be engaged in reviewing the recommendations made by the EPR team and commenting as appropriate.

9. RSC continues to review all NERC standards under development for quality and content and to determine if their proposed reliability objective(s) continue to promote an adequate level of reliability for the Bulk Electric System.
10. Review of the NERC Event Analysis “Lessons Learned” for opportunities to submit Standards Authorization Requests (SARs) if enhancement and revisions to existing standards are needed. Work with the other program areas to develop feedback mechanisms to provide data points and input to the standards program area to ultimately consider and improve standards’ requirements.
11. NPCC Standards Staff has been participating and leading a subgroup of the NERC Standards Committee to implement the Compliance Guidance Policy. As part of this activity NPCC staff, in conjunction with the RSC have reviewed all existing and archived NERC standards project pages and evaluated all supporting documents contained on those pages for potential embedded compliance approaches which could be considered for CMEP Implementation Guidance. A webpage has been developed on the NERC website containing an initial list of documents which should be considered for CMEP Implementation Guidance.
12. The RSC provided input and guidance into the development of a regional feedback mechanism in conjunction with the NPCC Compliance Committee. The process (feedback mechanism) is designed to improve NERC Reliability Standards based on CMEP Implementation and Event Analysis. The feedback mechanism identifies risk-based Reliability Standard improvement issues, evaluates these issues, and when appropriate, incorporates the improvement issues into revised or modified Reliability Standards.
13. Participate in NERC’s RISC by providing a regional point of contact for all potential reliability related risks and gaps within the Northeast or as noted by NPCC stakeholders.

Since the last RCC meeting the RSC and NPCC Standards Staff have been engaged in the following activities for the below high priority items:

- **Regional Standard Activities**

- A Regional Standard Authorization Request (RSAR) was submitted to the RSC proposing a review and potential revision of NPCC Regional Standard PRC-006-NPCC-1, Automatic Underfrequency Load Shedding. In accordance with the RSPM, the RSC accepted the RSAR. Notification was made to the Reliability Coordinating Committee and the Drafting Team assignment was given to the Task Force on System Studies (TFSS). The drafting team has conducted two meetings and has scheduled a third, in order to review the requirements of PRC-006-NPCC-1 with respect to the RSAR and to ensure that they augment and enhance any applicable NERC standards, NPCC Criteria and the attributes of the regional UFLS program. The Implementation Plan will be addressed accordingly. The drafting team is currently reviewing the comparison table of PRC-006-NPCC-1 and PRC-006-2 in detail and developing appropriate recommendations.
- NPCC Standards Staff has been working with NERC Legal and Standards Staff to determine the most efficient way to revise an existing regional variance within the

continent-wide NERC PRC-006-2 Automatic Underfrequency Load Shedding Standard. It has been determined that NPCC has the authority, based on the Interconnection-wide application of the Quebec variance within NPCC, to utilize our existing NPCC regional standard development process to develop this revision. The RSC worked with Quebec to develop the revision expeditiously and outside of the NERC standards development process. A drafting team supported by NPCC Standards Program Area staff finalized revisions to the existing Quebec variance and the revised standard has been posted to the NPCC Open Process to receive comments until December 15th, 2016.

Pending reconciliation of comments, the standard is scheduled to be posted for a 30-day pre-ballot review period with a subsequent ballot during the first quarter of 2017.

- **NPCC Criteria Services - Directory activity:**

NPCC Directories have been developed in order to provide a consistent and comprehensive set of reliability requirements for the Northeast, while consolidating related information for NPCC Criteria, Guidelines, Procedures as well as FERC and NERC approved Regional Standards into one document.

The reformatting of each Directory in order to provide specific and measurable Criteria requirements is ongoing. This effort is being coordinated with the respective Task Force review of each Directory and will clearly delineate the NPCC regional criteria that are more specific or more stringent within each document. Also, as part of NPCC's obligation outlined in the Rules of Procedure, the Criteria must remain enhance or augment the NERC reliability standards. NPCC Staff coordinates continual reviews of the more stringent criteria against new or revised NERC standards for potential retirement or revision.

The status of current Directory activity is as follows:

Directory #1 Design and Operation of the BPS:

The Task Force on Coordination of Planning (TFCP) is monitoring an RCC approved Implementation Plan within ISO-NE on the Directory#1 criteria attributes that govern the performance requirements for Table 1 and Table 3. Specifically, for contingencies that involve fault clearing, stability shall be maintained when the simulation is based on fault clearing initiated by the "system A" protection group and also shall be maintained when the simulation is based on fault clearing initiated by the "system B" protection group.

Directory #7 Special Protection Systems:

The Regional Standards Committee (RSC) continues to monitor the development and approval status of NERC standard PRC-012-2 Remedial Action Schemes in order to assess its impact on the NPCC criteria for Special Protection Systems in Directory #7.

Pending final approval of the standard NPCC will evaluate changes to its existing criteria, guidelines, procedures and Glossary Terms if necessary.

Directory #8: System Restoration:

The Task Force on Coordination of Operation (TFCO) and the CO11 Restoration Working Group posted Directory#8 System Restoration to the NPCC Open Process to consider revisions to the battery testing criteria in order to eliminate duplicity with the recently approved PRC-005-2 Protection System Maintenance.

The TFCO and its Working Group have made further revisions to the criteria based on comments received and the document will be re-posted to the Open Process.

Directories #9 and #10 Verification of Real and Reactive Capability:

The TFCO assigned the CO7 Working Group to review a technical comparison between the criteria in Directory #9 and Directory #10 with the NERC requirements in MOD-025-2 (Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability) which becomes enforceable on July 1st, 2016.

Subsequently the TFCO posted a recommendation to retire both Directories pending the full enforcement date of MOD-25-2 in July 2019.

The TFCO is considering comments received in the Open Process prior to submitting its recommendation to the RCC.

Directory #11 Disturbance Monitoring Equipment:

On October 24th, 2016 the NPCC Full Member Committee voted to approve Regional Reliability Directory#11 *Disturbance Monitoring Equipment Criteria*.

Also approved was the concurrent retirement of the following NPCC documents:

- A-15 *Disturbance Monitoring Criteria*
- B-25 *Guide to Time Synchronization of Substation Equipment*
- B-26 *Guide for Application Disturbance Monitoring Equipment*
- B-28 *Guide for Generator Sequence of Events Monitoring*

Directory#11 will augment PRC-002-2 *Disturbance Monitoring and Reporting Requirements* and guide the effective application of equipment necessary to capture the data required by the NERC standard.

The status of current Criteria activity is as follows:

A-10 Classification of Bulk Power System Elements:

In accordance with the NPCC Reliability Assessment Program (NRAP) the TFCP will undertake a review of the A-10 in 2016.

TFCP Members are currently considering the scope of such a review prior to assigning the review of the methodology to the CP11 Working Group.

A-01 Criteria for Review and Approval of Documents:

In accordance with the NPCC Reliability Assessment Program (NRAP) the TFCP will coordinate a review of the A-01 in 2016.

The TFCP has considered comments received during an initial posting and made revisions which have been reposted to the Open Process.

- **Other Criteria Services activity:**

Regional Implementation of the revised ERO Glossary term Remedial Action Schemes (RAS):

The TFCP will coordinate the regional transition to the revised ERO Glossary term Remedial Action Schemes (RAS).

Accordingly, the TFCP has requested the TFSS to review the NPCC SPS list and organize the existing SPS's according to 1) those SPS's that conform to the revised definition of RAS; 2) those existing SPS's that do not conform to the revised definition 3) those current protection systems not on the SPS list and which do conform to the revised definition of RAS and which have not been subject to a regional review.

Also, in advance of a TFSP review of Directory#7, TFCP Reliability Coordinator representatives have been requested to consider whether they will continue to employ the regional review process as detailed in Directory#7.

Criteria Clarifications:

In accordance with the NPCC Directory Development and Revision Manual the TFCO and the TFCP evaluated two separate Requests for Criteria Clarification both of which were posted to the Open Process and approved at the September 7th, 2016 RCC meeting.

Both Clarifications have been posted to the NPCC website at:

[Criteria Clarifications Rendered](#)

Directory#5 *Reserve:*

The TFCO provided a clarification regarding the use of storage resources with inverter technology as synchronous reserve.

Directory#1 *Design and Operation of the BPS:*

The TFCP provided a clarification regarding the use of Tie Benefits and firm capacity transactions in the Area Resource calculation.

Currently the TFSP has posted a Clarification to the criteria in Directory#4 *System Protection Criteria*, which provides guidance as it pertains to the design of breaker failure protection contained in Sections 5.2 and Section 5.15 of the Directory.

The posting concluded on November 17th, 2016 and TFSP will consider all comments received.

- **NPCC RSC activities:**

- NPCC RSC in conjunction with Staff developed and is maintaining a document showing typical U.S. and NPCC Provincial regulatory approval time frames to promote understanding of when and how NERC and Regional Standards are approved. The document will ensure all activities, including regulatory filings, are tracked and managed effectively.

The NPCC RSC and Staff participate on and provide input to the NERC Standards Committee, Standards Process Subcommittee and Standards Drafting Teams in the following areas:

- NERC has requested that NPCC Regional Staff be involved in any current “Periodic Reviews” or “Enhanced Periodic Reviews” of standards when they periodically require review (every 5 years for ANSI or 10 years per Rules of Procedure). NPCC will directly participate in the team conducting the Enhanced Periodic Reviews of standards. As standards are due for revision, this team will apply reliability principles and metrics as well as perform a cost effectiveness review to determine if revisions to the standard are necessary.
- Continue the review of potential revisions to Version 5 of the NERC Functional Model to capture emerging issues with Risk Based Registration, Demand Side Resources and other NERC developments which may impact the functional model and registration criteria (i.e. Frequency Response Sharing Group).
- NERC is currently engaged in a project aligning terms between the Rules of Procedure, the NERC Glossary, and the Functional Model. This will provide consistency and uniformity in understanding. NPCC will be engaged in this project. Also, opportunity exists to align the Functional Model Version 5 with revisions to the existing terms. The initial ballot was approved by industry.
- NPCC staff continues to support the development of the “2007-06.2 Phase 2 of System Protection Coordination - PRC-001” retirement project. NPCC has had discussions with FERC staff to remove Balancing Authority from the applicability of this standard and is a member on the drafting team.
- NPCC staff has supported the development of “2010-05.3 Phase 3 of Protection Systems: Remedial Action Schemes (RAS) - PRC-012, PRC-013, PRC-014, PRC-015, PRC-016, and PRC-017.” NPCC is representing the concerns expressed by the region directly to the team developing the standard. The latest revision to the standard recognizes the local nature of some RAS and their minimal impact to the BES and has revised the standard accordingly. NPCC Staff recently supported NERC in a pre-filing meeting conducted with FERC in advance of the NERC petition.

- Ongoing education of the NPCC membership and stakeholders on NERC standards development and the Standard Processes Manual (SPM). NPCC Staff is working closely with other industry participants and providing notifications and updates to the stakeholders through the RSC.
 - Ongoing education of the NPCC membership and stakeholders in using NERC's newly implemented Standards Balloting System (SBS) and commenting system, and continue to make suggestions to NERC for improving the system.
 - NPCC Staff, with input from the RSC, has assisted NERC and the Standards Committee Process Subcommittee with development of standard drafting team training materials. These materials, both as documents and online modules, are used to train drafting teams in the development of NERC standards. Two training modules have been posted on the NERC Standards – Resources – webpage. The training will result in more efficient production of standards by industry volunteers and may be completed online.
- **Other RSC Activities**
 - RSC develops topics for the NPCC Standards and Compliance Workshops. Topics considered in the past include Real Time Reliability Monitoring and Analysis Capability, Protection System Coordination, Remedial Action Schemes and cost effectiveness.
 - RSC has implemented and is now reviewing, its alternatives to address the urgency and frequency of NERC standards related activities. RSC will continue to review and revise this process to continually strive to increase efficient utilization of NPCC's resources and discuss potential alternate and efficient ways to utilize NPCC's subject matter expert resources.
 - NPCC Staff and the RSC continually review the NPCC more stringent/specific NPCC Criteria. Changes are periodically filed with the New York State Public Service Commission and NPCC's most recent filing was approved in March 2016.
 - NPCC provides input into scheduling of NERC's standards related activities (e.g. posting schedules) through the NERC Project Management and Oversight Subcommittee. This is a subcommittee of the NERC SC.
 - The RSC has worked with the NERC Standards Drafting Teams and appropriate NPCC Task Forces and Working Groups to address all expressed regional concerns and developed ballot/re-ballot recommendations or provided issue statements for all posted NERC Reliability Standards ballots. Records of these recommendations may be found at: [NPCC Ballot Recommendations/Positions](#)
 - Continue to monitor emerging issues such as High Impact Low Probability, Smart Grid, Renewable Resources, the Clean Power Plan and CIP implementation and development.

- Review and coordinate consensus NPCC comments utilizing the NPCC subject matter experts in the Task Forces and Working Groups, to the extent possible, and transmit comments to NERC for in excess of 30 projects including relevant NERC postings. The full set of comments submitted may be found on the NPCC Website at: [NPCC RSC Submitted Comments](#)
- NPCC Standards Staff monitors NERC, NAESB and other regional activities related to standards and participates when necessary in bimonthly conference calls, and reviews the development of any issues for any potential reliability impacts.
- NPCC continues to support NERC Balancing Authority and Reliability Based Control Drafting Team efforts (“BARC”), the Frequency Response team, and other critical drafting efforts to ensure coordination exists between this team and the reserve sharing efforts underway in draft Directory and Standard documents at NPCC. Participation of the drafting team is critical to influencing the outcome of the quality of the standards as well as ensuring the concerns of the region are correctly represented.
- NPCC Standards and Legal Staffs are continually reviewing the MOUs with the Canadian Provinces to determine what the expectations are for Directory criteria.
- NPCC has assisted and will continue to assist Quebec with the filing of ERO and Regional standards with the Régie de l'énergie - Gouvernement du Québec.
- The RSC is also reviewing the NERC State of Reliability Report, Integration of Variable Generation Task Force Report and the Clean Power Plan for any opportunities to address reliability vulnerabilities which may exist. These vulnerabilities may be addressed with criteria, whitepapers, process or procedures. Opportunities may also exist to initiate Standard Authorization Requests.
- The RSC also understands the value in feedback loops from Compliance and Event Analysis and currently is discussing processes to ensure that lessons learned, compliance violations, emerging threats, and interpretation issues are addressed. Potential exists for addressing these issues through standard revisions, criteria or other processes.
- NPCC Standards staff has been assigned to work with NERC to address FERC issues raised in their five-year assessment of NERC. NPCC will be providing input and guidance on a number of important issues raised by the Commission in the standards program area of NERC. Notably, processing of interpretations, developmental records of standards and how to further leverage NERC and Regional technical expertise during standards development.

The RSC will next meet on December 8th and 9th in Montreal, Quebec Canada.

Respectfully,

Guy V. Zito
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 Chair, Regional standards Committee