



**RCC Meeting
November 30, 2021
Agenda Item 8.11**

**Reliability Assessment Program
(NRAP)
HIGHLIGHT REPORT**
*Prepared for the
Reliability Coordinating Committee
November 30, 2021*

Distributed to:

Members, Reliability Coordinating Committee
Members, Compliance Committee
Members, Regional Standards Committee
Members, Task Force on System Studies
Members, Task Force on System Protection
Members, Task Force on Coordination of Planning
Members, Task Force on Coordination of Operation
Members, Task Force on Infrastructure Security and Technology
Chairmen, Working Groups
and
NPCC Staff



Reliability Assessment Program

HIGHLIGHT REPORT

Contents

<u>Reliability Standards</u>	1
Regional Standards Committee	1
Directories, Appendices & Criteria	3
Directory Development and Revision Manual	13
NPCC Glossary of Terms	14
Regional Standards	15
Regional Standards Development Procedure	18
<u>Compliance Enforcement and Organization Registration and Certification</u>	19
Compliance Committee	19
Documents	20
<u>Training, Education, and Operator Certification</u>	21
Task Force on Coordination of Operation	21
<u>Reliability Assessment and Performance Analysis</u>	22
Task Force on Coordination of Operation	22
Task Force on Coordination of Planning	26
Task Force on System Studies	28
Task Force on System Protection	31
Eastern Interconnection Reliability Assessment Group	32
ERAG Seasonal Working Group	34
NERC	35
Other	41
<u>Situation Awareness and Infrastructure Security</u>	42
Task Force on Coordination of Operation	42
Task Force on Infrastructure Security and Technology	43
<u>Administrative Services</u>	46
Members' Forums	46



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program Regional Standards Committee

Item	Name	Assignment
RSC	Regional Standards Committee	<p>The NPCC Regional Standards Committee (RSC), a committee of the NPCC Board, is charged with management and maintenance of the NPCC Regional Standard Processes Manual (approved by FERC Dec. 23, 2014). The RSC considers requests for new or revised regional standards and be available for advisement to the NPCC Board of Directors on standards related matters. The RSC works in coordination with the Regional Standards Process Manager (RSPM) who is the administrator for the NPCC Regional Standard Processes Manual. In addition, the RSC reviews, comments on, and develops ballot recommendations for the NERC Reliability Standards under review or development. The RSC also provides oversight for the NPCC Regional Reliability Directories which contain NPCC’s more stringent regional Criteria and supporting procedures and guidelines. The RSC also conducts and coordinates the NPCC Cost Effectiveness Analysis Procedure (CEAP) for evaluation of the cost effectiveness of NPCC’s Regional Standards and Directories. The RSC provides input to the NERC “Periodic Review Projects” and the NERC version of the CEAP being referred to as cost effectiveness and is providing input into the “Standards Efficiency Review” (SER) project. The SER allows the industry the opportunity to identify potential standard requirements which could be candidates for retirement. The RSC also discusses potential avenues to address potential reliability related issues as well as opportunities to enhance reliability associated with the deployment of Distributed Energy Resources (DER). In addition, the RSC coordinates work with the RCC and CC to address any issues identified with standards to improve standards and reliability. The RSC also is sanctioned in the Compliance Guidance Policy process to vet potential approaches to compliance prior to submission to NERC and is engaged in revising the NPCC Regional Standard Processes Manual. The RSC will also serve as a liaison for the Northeast Region to the NERC RSTC for any Standards related recommendations.</p>

Status/ Comments:

The RSC is focused on the review of each of the NERC Reliability Standards (as they are developed, revised, or reviewed for reaffirmation or retirement). The RSC is currently reviewing all the FERC Orders and NOPRs that pertain to Reliability Standards. The RSC develops recommendations for the membership on ballots when posted. The RSC also supports the NERC Standards Efficiency Review, Functional Model Working Group, NERC Standards Committee, and the NERC Standards Committee Process Subcommittee. The RSC is in the process of reviewing the NPCC Regional Reliability Standards Development Procedure, renamed the Regional Standard Processes Manual. The RSC continues to participate in the NERC Standard Processes Manual revisions and the Results Based Standards Initiative through its support of the Standards Committee Process Subcommittee and solicits members for the NERC drafting teams as necessary to ensure NPCC is adequately represented. The RSC has been overseeing the Strategic Review of NPCC Criteria.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Regional Standards Committee

Item	Name	Assignment
RSC	Regional Standards Committee	<p>The RSC continues to consider enhancements to the NPCC Website to provide further uniformity and consistency with that of NERC and other Regions.</p> <p>Status/Comments: The RSC is currently engaged in reviewing a potential approach to penetration of utility-scale Distributed Energy Resources (DERs) on the distribution system, and adverse impact on the BES. The Distributed Energy Resource BES impact reporting form is posted on the NPCC website. The RSC hosted three DER forums in 2021 and one Offshore Wind forum. The DER and Offshore Wind Forums are open to the public. The next DER Forum is tentatively scheduled for February 2022. The DER Forums are hosted on the second day of RSC meetings. The NPCC Standards staff developed Version 1 and 2 of the DER Guidance Document which was endorsed by the members of RSC in 2019 and 2020. All comments from the DER Guidance Document comment period were reviewed and responded to by the NPCC Standards staff and members of RSC. Version 3 of the NPCC DER Guidance Document is under development and the plan is to have the document finalized on December 2, 2021 during the RSC meeting and post it for comments by the end of the year.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-1	Basic Criteria for the Design And Operation of the Bulk Power System	Appendix A – ERO Standards Appendix B – Guidelines and Procedures for NPCC Area Transmission Review Appendix C – Procedure for Testing and Analysis of Extreme Contingencies Appendix D – Guidelines for Area Review of Resource Adequacy Appendix E – Guidelines for Requesting Exclusions to Sections 5.4.1 (B) and 5.5.1 (B) of NPCC Directory No. 1 Design and Operation of the Bulk Power System Appendix F – Procedure for Operational Planning Coordination Appendix G – Procedure for Inter Reliability Coordinator Area Voltage Control	TFCP TFCP TFCP TFCP TFCO* TFCO*	September 30, 2015

Status/ Comments:

The Task Force on Coordination of Planning (TFCP) and the Task Force on Coordination of Operation (TFCO) completed a collaborative review of Directory No. 1 in 2015. The NPCC Full Member committee approved the most recent version of Directory No. 1 on September 30, 2015.

Currently the RCC is monitoring an Implementation Plan governing protection upgrades in New England.

The TFCP has approved a Scope of Work, and a Joint Planning and Operations Working Group has begun the review of this document.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-2	Emergency Operation	Appendix A – Definition of Terms Appendix B - Guideline and Procedure for Emergency Operation	TFCO TFCO TFCO	June 29, 2018
	Status/ Comments:	<p>The Task Force on Coordination of Operation (TFCO) and its CO-8 Working Group posted a revised version of Directory No. 2 <i>Emergency Operations</i> to the Open Process on December 30, 2017.</p> <p>The Directory No. 2 criteria has been reformatted into NERC style requirements and has been reviewed to ensure the criteria is consistent with recently approved ERO Standards.</p> <p>The NPCC Full Member Committee approved the revised version of Directory No. 2 on June 29, 2018.</p>		

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-3	Maintenance Criteria for Bulk Power System Protection	Appendix A – Definition of Terms Appendix B – Guidelines and Procedures for Maintenance of Bulk Power System Protection	TFSP TFSP TFSP	Retired April 1, 2015
	Status/ Comments:	<p>The Task Force on System Protection (TFSP) completed a technical comparison of the criteria in Directory No. 3 with PRC-005-2 <i>Protection System Maintenance</i> and recommended that the criteria in Directory No. 3 be retired.</p> <p>The RCC approved the TFSP recommendation and on October 15, 2014 the NPCC Full Membership voted to approve the retirement of Directory No. 3, effective April 1, 2015, upon the enforcement date of PRC -005-2 <i>Protection System Maintenance</i>.</p>		



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-4	BPS Protection Criteria		TFSP	January 30, 2020
		Appendix A – Guideline for Bulk Power System Protection	TFSP	
		Appendix B - Procedure for Reporting to TFSP New and Modified Protection Systems	TFSP	
	Status/ Comments:	An updated version of Directory No. 4 was approved at the December 3, 2019 RCC meeting. The NPCC Full Membership approved the proposed RCC revisions to Directory No. 4 on January 30, 2020.		



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-5	Reserve	Appendix A – Monitoring Procedure for Operating Reserve Criteria Frequency Response	TFCO	September 27, 2019
		Appendix B – Procedures during Abnormal Operating Conditions	TFCO	
		Appendix C – Participation Request Form – Simultaneous Activation of Reserve and ACE Diversity Interchange	TFCO	
		Appendix D – Guidelines for Determining the Time T+0	TFCO	

Status/ Comments:

The Task Force on Coordination of Operation (TFCO) completed a comprehensive review of Directory No. 5 in 2019 with the NPCC Full Membership approving the revised version of Directory No.5 on September 27, 2019. The review considered the impact of evolving ERO standards, NPCC Glossary updates and revisions, revised synchronized reserve criteria, and retired procedures detailed within the Appendices.

Errata corrections to Requirement 4.3, Attachments B - C, and Appendix C were incorporated in January and April 2020.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-6	Regional Reserve Sharing		TFCO	September 27, 2019

Status/Comments:

The Task Force on Coordination of Operation (TFCO) and its CO-8 Working Group completed a comprehensive review of Directory No. 6 and posted a revised version of the document to the NPCC Open Process. The TFCO review considered the impact of evolving ERO standards, emerging industry technologies and the recommendations contained in the Phase 2 Final Report on the A-10 Methodology. An updated version of Directory No. 6 was approved by the RCC for approval at its September 4, 2019 meeting. The NPCC Full Membership approved the revised version of Directory No.6 on September 27, 2019.

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-7	Remedial Action Schemes		TFCP	Dec. 22, 2020
		Attachment 1 – Definition of Terms	TFSP	
		Appendix A – Guidance for Consideration in SPS Design Criteria	TFSP	
		Appendix B – Procedure for Review of Special Protection Systems	TFCP	

Status/ Comments:

The Task Force on Coordination of Planning (TFCP) and the Task Force on System Protection (TFSP) completed a comprehensive review of Directory No. 7 to ensure that the existing regional review process and the specific criteria attributes within the document are consistent with PRC-012-2. The title of the document and the existing NPCC Glossary term for Special Protection Systems was revised to be consistent with NERC’s Glossary term for Remedial Action Scheme. The RCC recommended the NPCC Full Member Committee approval of these changes at its December 1, 2020 meeting. The NPCC Full Membership approved the revised version of Directory No.7 on December 22, 2020.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-8	System Restoration	<p>Appendix A - Table 1 “Standard Test Procedures for key facilities and associated critical components required for system restoration.</p> <p>Appendix B: NERC ERO Reliability Standards</p> <p>Appendix C - Table 2: Comparison of Test Procedures for Critical Components of Key Facilities of the System Restoration Plan</p> <p>Status/ Comments:</p> <p>The Directory No. 8 Triennial Review Team, consisting of CO-11 Working Group members and additional NPCC Transmission Operator representatives, continues to conduct focused review sessions of Directory No. 8 every three weeks throughout 2021. The next focused review session is scheduled for December 10, 2021. Thus far, the team has addressed non-substantive, deferred NPCC member comments from the previous triennial review in 2018, test procedures for Critical Components, and proposed new testing procedure language for certain requirements for better alignment with available system and computer technologies. Through the Task Force on Coordination of Operation, the Task Force on System Protection was also requested to review Testing Procedures in Directory No. 8 to ensure the criteria remains more specific and stringent to any recent changes made to PRC-005.</p> <p>In accordance with the NPCC Directory Development and Revision Manual, a Cost Effectiveness Analysis (CEA) review was also completed to describe enhanced reliability attributes and resilience components of the criteria. The CEA will also seek member comment to identify if there are any potential alternatives achieving the same reliability outcome.</p> <p>An Open Process posting in Q1-2022 is anticipated following TFCO review.</p>	TFCO	September 25, 2018



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

Item	Name	Appendices	Lead TF	Current Version
DIR-9	NPCC Verification of Generator Gross and Net Real Power Capability	Appendix A – Definition of Terms Appendix B – Basic Flow Chart for Verification of Generator Gross and Net Real Power Capability	TFCO TFCO/TFCP ¹ TFCO/TFCP ¹	Retired July 1, 2019

Status/ Comments:

The NPCC Full Membership voted to approve the retirement of NPCC Regional Reliability Directory No. 9 *Verification of Real Power Capability*, and seven existing NPCC Glossary terms contained solely within Directories No. 9 and No. 10, effective July 1, 2019. Directory No. 9 is posted on the NPCC website marked with a ‘retired’ watermark.

Item	Name	Appendices	Lead TF	Current Version
DIR-10	NPCC Verification of Generator Gross and Net Reactive Power Capability	Appendix A – Definition of Terms Appendix B1 – Basic Flow Chart for Verification of Generator Gross and Net Reactive Power Capability Appendix B2 – Generator Reactive Capability Form	TFCO TFCO/TFCP ¹ TFCO/TFCP ¹ TFCO/TFCP ¹	Retired July 1, 2019

Status/ Comments:

The Task Force on Coordination of Operation has completed a technical comparison of the Directory No. 10 criteria with the requirements of MOD-25-2 and concluded that Directory No. 10 can be retired without creating a reliability gap. On August 3, 2017, the NPCC Full Member Committee voted to approve the retirement of NPCC Regional Reliability Directory No. 10 *Verification of Reactive Power Capability*, and seven existing NPCC Glossary terms contained solely within Directories No. 9 and No.10, effective July 1, 2019. Directory No. 10 is posted on the NPCC website marked with a ‘retired’ watermark.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-11	Disturbance Monitoring Equipment Criteria		TFSP	October 24, 2016
		Appendix A – Guide to Time Synchronization of Substation Equipment	TFSP	
		Appendix B – Guide for Application of DME	TFSP	
		Appendix C – Guide for Generator Sequence of Events Monitoring	TFSP	

Status/ Comments:

On October 24, 2016 the NPCC Full Member Committee voted to approve regional Reliability Directory No. 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 No. 11 augments PRC-002-2 *Disturbance Monitoring and Reporting Requirements* and guides effective application of equipment necessary to capture the data required by the NERC standard.

The Task Force on System Protection has completed its periodic review of Directory No.11 and the revised and updated document is on the November 30, 2021 RCC Agenda for approval.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Appendices</u>	<u>Lead TF</u>	<u>Current Version</u>
DIR-12	UFLS Load Shedding Program Requirements	Appendix A – Definition of Terms	TFSS TFSS	Retired Oct. 1, 2021
	Status/ Comments:	The Task Force on System Studies (TFSS) posted a retirement recommendation for Directory No. 12 on April 28, 2021 for a 45- day comment period. The TFSS has recommended that Directory No. 12 can be retired effective October 1, 2021 to coincide with the enforcement date of PRC –006-NPCC –02 in all jurisdictions. On October 19, 2021 the NPCC Full Member Committee voted to approve the retirement of Directory No. 12 effective October 1, 2021.		
<u>Item</u>	<u>Name</u>	<u>Criteria</u>	<u>Lead TF</u>	<u>Current Version</u>
A-01	Criteria for Review and Approval of Documents		TFCP	Retired Sept. 25, 2018
	Status/ Comments:	The Regional Standards Committee (RSC) updated the NPCC <i>Directory Development and Revision Manual</i> , and relevant sections of the A-01 <i>Criteria for Review and Approval of Documents</i> have been incorporated into the Directory Manual for the purposes of retiring the A-01. The revised and updated NPCC Directory Manual, including sections of the A-01 document, was approved by the RSC in August 2018. Concurrent with the RSC review of the revised Directory Manual, the RCC approved the retirement of the A-01 document and on September 25, 2018 the NPCC Full Membership approved the retirement of the A-01 Document.		



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directories, Appendices & Criteria

<u>Item</u>	<u>Name</u>	<u>Criteria</u>	<u>Lead TF</u>	<u>Current Version</u>
A-10	Classification of Bulk Power System Elements		TFCP	March 27, 2020

Status/ Comments:

The Task Force on Coordination of Planning (TFCP) and its CP-11 Working Group conducted a review of the A-10 methodology. The CP-11 Working Group effort focused on three objectives as highlighted by the TFCP in the project scope: 1) Identify critical facilities for the applicability of NPCC Directories; 2) improve consistency of application and outcome across the region; and 3) simplify the methodology to make it less resource intensive.

The RCC approved testing of three proposed methodologies developed by the CP-11 Working Group during Phase I of the review in 2017. These proposals included revisions to the existing methodology and two new methodologies. The CP-11 Working Group Final Report concluded that a revised and improved existing methodology is the most effective of the proposals in identifying those facilities critical to the design and operation of the BPS. The recommended improvements include revisions to the overall testing strategy (i.e., where to begin and conclude testing), base case set-up (i.e., load levels, interface stress and generation patterns) and the use of performance requirements to assess testing outcomes. The RCC approved the CP-11 Working Group's recommendations in December of 2018 and these recommendations have been incorporated into a revised version of the A-10 Document.

The TFCP posted a revised version of the A-10 to the Open Process for two Open Process comment periods and the TFCP has responded to all comments. The RCC approved the revised A-10 Document and an associated implementation plan at its February 27, 2020 meeting. The NPCC Full Member Committee voted to approve the revised A-10 Document on March 27, 2020.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Directory Development and Revision Manual

Item	Name	Assignment	Current Version
Directory	Directory Development and Revision Manual	<p>The NPCC Directory Development and Revision Manual is intended to provide guidance regarding the process of establishing a new or revised Directory and will clarify the roles and responsibilities of the NPCC Task Force responsible for Directory content.</p> <p>Status/ Comments:</p> <p>The Directory Development and Revision Manual was revised in 2013 to incorporate changes in the approval process for a Criteria Interpretation (clarification) and to consider revisions to the Manual that incorporate cost considerations for new or revised criteria.</p> <p>A revised version of the Directory Manual which incorporated relevant sections of the A-01 document to facilitate retirement of the A-01 was approved by the RSC in August 2018. A repeatable cost- effective evaluation has also been incorporated into the Directory Manual to ensure a cost- effective evaluation of the criteria during periodic Task Force reviews of each Directory. The RSC approved minor updates to the Manual in October 2020.</p>	October 2020



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

NPCC Glossary of Terms

Item	Name	Assignment	Current Version
Glossary	NPCC Glossary of Terms	<p>The NPCC Glossary of Terms has replaced the A7 document and was approved by the RSC on October 26, 2011. The Glossary contains the definitions of all terms found within NPCC Directories, Guidelines, and Procedures.</p> <p>The Glossary is organized in sections containing those terms found in Directories (including Appendices) which support the NPCC criteria and another Section for definitions found within remaining NPCC B and C documents.</p> <p>The Glossary is in the Directory section of the NPCC website.</p>	October 26, 2011



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Regional Standards

<u>Item</u>	<u>Name</u>	<u>Assignment</u>	<u>Current Version</u>	
PRC-002-NPCC-01	Disturbance Monitoring	This Standard establishes the technical and reporting requirements for disturbance monitoring equipment. This will lead to improved system reliability by providing the resources to do post event analyses.	Latest Version:	Retired
			Date:	August 16, 2016

Status/ Comments:

The proposal to retire PRC-002-NPCC-01 *Disturbance Monitoring* regional standard was approved by the NPCC Board on March 23, 2016 and by the NERC Board of Trustees on May 5, 2016. After NERC Board approval, a petition to retire the regional standard was filed with FERC on June 9, 2016 and it was filed with all Canadian Provinces on June 14, 2016.

FERC issued an approval letter for the retirement of Regional Reliability Standard PRC-002-NPCC-01 *Disturbance Monitoring* on August 16, 2016.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Regional Standards

Item	Name	Assignment	Current Version	
PRC-006 NPCC-1	Under Frequency Load Shedding (UFLS)	This Standard will provide the requirements for implementing an automatic under frequency load shedding program to effectively respond to system under frequency events.	Latest Version:	Feb. 2020
			Frequency of Reviews:	3 years
			Next Review Date:	Feb. 2023

Status/ Comments:

FERC approved PRC-006-NPCC-1 and its Implementation Plan on February 21, 2013. Based on the FERC approved Implementation Plan the enforcement date for requirements R1 – R7 is January 1, 2016. Requirements R8 – R23 became on enforceable on July 1, 2015.

As a result of developments regarding NERC PRC-006-1/PRC-006-2 *Automatic Underfrequency Load Shedding*, PRC-024-1/PRC-024-2 *Generator Frequency and Voltage Protective Relay Settings*, Project 2014-01 *Standards Applicability for Dispersed Generation Resources*, NPCC Directory No. 12 *Underfrequency Load Shedding Program Requirements*, and the 2013 *NPCC UFLS Adequacy Assessment*, a Regional Standard Authorization Request (RSAR) for revision of Automatic Underfrequency Load Shedding PRC-006-NPCC-1 was approved by the Regional Standards Committee at its June 23, 2015 meeting. The RCC approved the Regional Standards Committee’s request to assign the TFSS to the project scope outlined in the RSAR and to populate the Drafting Team. On October 7, 2015, the RSC approved the drafting team roster as per the recommendation of the TFSS leadership. The PRC-006-NPCC-01 Automatic UFLS drafting team met eleven times and three conference calls. All requirements have been reviewed by the SDT and the draft standard was posted for three open process comment periods and for a 90-day pre-ballot review. A ballot was then conducted which closed on February 10, 2019. The ballot achieved 80.95% quorum and approval of 76%. Due to an ERRATA, the standard was re-approved by the NPCC Board at their September 5, 2019 meeting. It was approved at the November 5, 2019 BOT meeting. The petition for approval is sent to FERC on December 23, 2019 and FERC has assigned Docket RD20-1-000 open for comment period which closed on January 22, 2020. The PRC-006-NPCC-02 was endorsed by FERC on February 18, 2020.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Regional Standards

Item	Name	Assignment	Current Version	
BAL-002- NPCC-01	Regional Reserve Sharing Groups	The Standard provides the measures for implementing Reserve Sharing Groups within NPCC to meet their reserve obligations.	Latest Version:	New
			Frequency of Reviews:	3 years
			Next Review Date:	
	Status/ Comments:	A Regional Standard Authorization Request (RSAR) has been developed and approved by the RSC. The RCC has assigned the Task Force on Coordination of Operation (TFCO) to act as the drafting team and a request for drafting team members was sent to the NPCC membership. At its meeting of April 14 and 15, 2011, the TFCO established a sub-group of TFCO members and NPCC staff that will work on the Reserve Sharing Groups Standard's development. The development of Regional Standards has been held in abeyance pending further direction from NERC.		



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Standards Program

Regional Standards Development Procedure

Item	Name	Assignment	Current Version
RSPM Regional Standard	<p>The NPCC Regional Standard Processes Manual describes the procedures, policies, and practices implemented to ensure an “open, fair, and inclusive” process for the transparent initiation, development, implementation and revision of the NPCC Regional Standards necessary for the reliable operation of the Interconnected Bulk Power System in northeastern North America.</p>	<p>Latest Version: Nov. 2020</p> <p>Frequency of Reviews: 3 years</p> <p>Next Review Date: Nov. 2023</p>	
Status/ Comments:	<p>The Regional Standard Processes Manual (RSPM) is posted on the NPCC Website. The RSC actively reviewed the activities at the NERC level to ensure the regional procedure is consistent with the NERC Standard Processes Manual and achieves a consistency with the NERC common attributes adhered to by the other Regions. During the June 20, 2018 RSC meeting, a small team was formed to review the current RSPM for any potential updates. The RSC reviewed and updated the existing RSPM. The revised RSPM was approved by the RSC for comment posting on August 7, 2019. The RSPM was posted for a 45-day comment period from September 11, 2019 to October 26, 2019. The RSPM was posted for a ballot period from January 17, 2020 to February 25, 2020. The results of the ballot were as follows: 81.65% quorum and 100% approval. The RSPM was approved by the NPCC Board at their meeting on May 6, 2020.</p> <p>The NPCC RSPM was posted by NERC for a 45-day industry wide comment period that concluded on July 29, 2020. The proposal to approve Regional Standard Processes Manual was submitted to the NERC Board of Trustees and approved at their August 19-20, 2020 meeting. NERC and NPCC filed the joint petition to FERC on September 10, 2020. On November 23, 2020, FERC issued a letter order endorsing the revised NPCC Regional Standard Processes Manual. Docket Number: RR20-7-000.</p>		



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Compliance Enforcement and Organization Registration and Certification Program

Compliance Committee

<u>Item</u>	<u>Name</u>	<u>Assignment</u>
CC	NPCC Compliance Committee	<p>The NPCC Compliance Committee provides objective stakeholder input for Staff consideration in the implementation of the NPCC Compliance Monitoring and Enforcement Program (CMEP). The NPCC CMEP covers compliance assessment and enforcement of NERC Reliability Standards and NPCC Regional Reliability Standards. As part of its role, the CC will endorse the compliance procedures (CP) used by the NPCC Compliance Staff in the conduct of the CMEP. In addition, the CC is responsible for reviewing Directory certification forms and providing non-monetary sanction recommendations to the RCC for incidents of non-compliance with aspects of monitored Reliability Criteria.</p> <p>Status/ Comments: At the January 13, 2021 meeting, the 2021 CC Scope and CC Work Plan were discussed and approved. Both documents were approved by the NPCC Board on January 27, 2021. On the January through May 2021 CC calls, NPCC Staff shared with the CC updates and explanations on the transition from the CDAA compliance reporting tool to the new ERO compliance tool, which will occur through 3 Releases in 2021. The new tools are Align and the Secure Evidence Locker. A prioritized Align/SEL training plan for stakeholder users was developed by NPCC Staff and accepted by the CC on March 17, 2021. The CC was presented with the draft NPCC criteria for incorporating entity Performance Considerations in the development of Compliance Oversight Plans (COPs). Due to CC questions, a small working group was set-up to review the criteria in an objective fashion to propose updates at the May 26, 2021 CC meeting where the revised PC Criteria was accepted by the CC. NPCC status and progress on the implementation of the new Align/SEL tool, including stakeholder training were presented to the CC at each monthly meeting in 2021.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Compliance Enforcement and Organization Registration and Certification Program

NPCC Compliance Committee

Documents

<u>Item</u>	<u>Name</u>	<u>Assignment</u>
CCEP	Criteria Compliance and Enforcement Program	<p>The CC will maintain the <i>NPCC Criteria Compliance and Enforcement Program Process Document (CCEP-1)</i> which documents the process for actively monitoring and enforcing compliance on a subset of the Reliability Criteria.</p> <p>The Compliance Committee provides the RCC an annual CCEP Implementation Plan for approval which identifies the Reliability Criteria that will be monitored in the upcoming CCEP compliance year and identifies the due dates for the Reliability Criteria Certification forms. The Compliance Committee also provides the RCC an annual written assessment of the submitted Reliability Criteria Certification forms for approval which includes recommendations as necessary of non-monetary sanctions for incidents of non-compliance.</p> <p>Status/ Comments:</p> <p>The CCEP Working Group has updated the CCEP-1 process document and it was presented and endorsed by the CC on April 22, 2020. It was provided to the RCC and posted on the NPCC website. In addition, the CC provided a recommendation to the RCC on April 23, 2020 on how issues with Full Member Directory noncompliance due to COVID response should be documented. On July 15, 2020 the CC developed and endorsed the 2019 CCEP Assessment Report which was presented for acceptance at the September 9, 2020 RCC meeting. The 2021 CCEP Implementation Plan and the blank forms for the 2021 Implementation Plan (IP) were approved at the September 16, 2020 CC meeting. The 2021 CCEP IP was accepted at the December 1, 2020 RCC meeting. The last of the CCEP certification forms for the 2020 CCEP year were due on May 20, 2021. The CC developed the 2021 CCEP Assessment Report in time for discussion at the July which was then presented (and accepted by) to the RCC on September 8, 2021. The 2022 CCEP Implementation Plan will be presented at the November 30, 2021 RCC meeting. In October 2021, a Directory No. 8 draft certification form for TOs to certify to Key Facility testing under the 2023 CCEP Implementation Plan was shared by the CC Chair with Task Force on Coordination of Operation.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Training, Education, and Operator Certification Program

TASK FORCE ON COORDINATION OF OPERATION

Item	Name	Assignment
CO-2	System Operator Training Seminar	<p>This Working Group establishes a program for system operator training relating to NPCC Inc. inter-Area matters, Working Group criteria, terminology, policies, and operating instructions. It prepares and presents material at system operator training sessions, exchanges information on internal system operator training methods. The CO-2 Working Group also evaluates and proposes new techniques and training aids as they become available.</p>
	Status/ Comments:	<p>The 2021 Fall 87th NPCC System Operator Seminar was held virtually on November 3, 2021, in virtual format via WebEx due to ongoing COVID-19 pandemic related travel restrictions. The seminar program focused on topics related to Human Performance, review of notable system events, presentations on the February 2021 Cold Weather Event and 1965 Northeast Blackout. The seminar agenda was developed at the CO-2 Working Group planning meeting on September 15, 2021 and was coordinated with the CO-8 Working Group. The seminar was attended by 51 participants including operators from all five (5) NPCC Reliability Coordinators, NSPI, and guest participants from Newfoundland and Labrador System Operations. Consistent with past practice, participant evaluation results will be reviewed and incorporated as improvements into future seminar programs. Additionally, a follow-up meeting with CO-8 and Human Performance Expert Dr. Jake Mazulewicz is scheduled occur on December 13, 2021.</p> <p>The Working Group members continue to discuss and make enhancements to their training programs, monitor System Operator Credential Maintenance under pandemic related restrictions, and share lessons learned to provide system operators with the necessary Continuing Education Hours and safe training opportunities to support reliable system operations during COVID-19 pandemic protocols.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON COORDINATION OF OPERATION

Item	Name	Assignment
CO-1	Control Performance Working Group	<p>The Working Group ensures coordination between adjacent control areas in establishing interchange schedules, reviews time error correction procedures, and monitors the conformance of the Areas with NPCC Control Performance Criteria and Operating Reserve Criteria. At the request of the Task Force on Coordination of Operation (TFCO), it conducts investigations of control performance problems.</p> <p>Status/ Comments:</p> <p>The CO-1 Working Group most recently met on August 4-5, 2021 and is scheduled to meet next on December 9-10, 2021. In addition to the regular periodic Control Performance monitoring activities, the CO-1 Working Group held a focused session on April 7, 2021 to review and provide comments to the latest version of the BAL-003.1 Phase II Standards Drafting Team Whitepaper, which had been released for an informal comment period on March 29, 2021 through April 27, 2021. The CO-1 Working Group solicited the CO-8 Working Group and the TFCO for additional feedback prior to submitting comments to NERC. The CO-1 Working group also continues to closely monitor the activities of the NERC Resources Subcommittee.</p> <p>The CO-1 Working Group continues to conduct periodic monitoring as required by NERC and NPCC Control Performance and Reserve Criteria, and in coordination with the CO-8 Working Group and the TFCO. No discernable operational trends have been identified. The Working Group continues to closely follow industry storage integration discussions with regards to potential developments to applicable Directory #5 criteria.</p>

Item	Name	Assignment
CO-7	Operational Planning Working Group	<p>The Working Group CO-07 was restructured to serve the Task Force on Coordination of Operation (TFCO) as an Ad Hoc Working Group, populated and charged to address specific issues as required to assist the TFCO. It has been renamed the “Operational Planning Working Group.”</p> <p>Status/ Comments:</p> <p>The CO-7 Working Group has been populated in preparation for the 2021-22 TFCO/Task Force on Coordination of Planning coordinated comprehensive triennial review of NPCC Directory No. 1. A new CO-7 Working Group roster was approved at the May 26, 2021, RCC meeting.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON COORDINATION OF OPERATION

Item	Name	Assignment
CO-8	System Operations Managers Working Group	Provide a forum for the Managers of the NPCC control centers to identify and discuss security concerns in the operation of the interconnected bulk power supply system, and specific concerns related to the integration of operation between and among the evolving ISOs. The System Operations Managers Working Group will also assist the Task Force on Coordination of Operation (TFCO) in their work on issues related to system security and the operation of the ISOs, and provide advice to the TFCO, as requested.
	Status/ Comments:	<p>At its May 3-4, 2021, meeting the CO-8 Working Group members, including representative from PJM reviewed Areas' Winter 2020-21 operations and Summer 2021 outlook. The CO-8 Working Group most recently met on August 17-18, 2021 and will meet again on November 3-4, 2021. At its August 17-18 meeting the group reviewed Areas' Summer 2021 operations, to date. Additionally, at its August meeting the CO-8 Working Group discussed preparations and coordination activities with the CO-2 Working Group for the Fall 2021 NPCC System Operator Seminar, scheduled to be held virtually on November 3, 2021, and status of preparation activities, topics and scenarios being considered by the CO-11 Working Group for the October 20, 2021 virtual NPCC RC to RC annual restoration exercise. At its November 3-4, 2021 meeting CO-8 WG reviewed Summer 2021 operating experiences and Winter 2022-23 outlook for NPCC RC Areas and PJM. CO-8 WG joined the November 3rd NPCC System Operator Seminar human performance focused presentation by Dr. Jake Mazulewicz on "How to Build Psychological Safety".</p> <p>The CO-8 Working Group continues to hold weekly Emergency Preparedness calls to discuss pandemic operations and any anticipated system operations challenges. As of November 12, 2021, the NPCC Emergency Preparedness Conference Call procedure was used by the system operation managers 48 times thus far during 2021.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program TASK FORCE ON COORDINATION OF OPERATION

Item	Name	Assignment
CO-11	Restoration Working Group	<p>The CO-11 Restoration Working Group facilitates effective and coordinated power system restoration among the NPCC Reliability Coordinator areas, and with adjacent Regions. It annually reviews the restoration plans of the NPCC Reliability Coordinator areas to identify in each individual plan the physical points requiring coordination, the general elements of the restoration plan, the Key Facilities associated with the restoration plan, the communication protocols employed, and the roles and responsibilities of the restoration participants. It identifies opportunities for mutual assistance during restoration and the extent to which each system can rely on its neighbors for assistance, and coordinates Reliability Coordinator restoration exercises and develops and supervises annual wide-area restoration drills. The CO-11 working Group monitors the NERC Reliability Standards EOP-005, <i>System Restoration from Blackstart Resources</i>, and EOP-006, <i>System Restoration Coordination</i>. The CO-11 Working Group provides comments to the NPCC Task Force on Coordination of Operation and the NPCC Regional Standards Committee as revisions to these Standards are posted for consideration and weighed for implementation.</p>

Status/ Comments:

The CO-11 Working Group most recently met on October 22, 2021 and will meet next in December 2021.

CO-11 and TOP representatives have been meeting regularly throughout 2021 to complete the triennial review of Directory No. 8. The scope of work was approved by the TFCO at its January 13-14, 2021 meeting and a detailed update on the effort is provided in the aforementioned Directory No. 8 update.

CO-11 also conducted the 2021 NPCC Wide Area RC-to-RC Restoration Exercise virtually on Wednesday, October 20, 2021 with 35 participants, including operators from all five (5) NPCC Reliability Coordinators. The tabletop exercise was conducted with the support PSS/e software to practice restoration steps under select scenarios. High level reviews of Area Restoration Plans were performed, and discussions included extreme natural events and critical infrastructure interdependencies. A follow-up report summarizing the exercise will be developed and shared with the TFCO and CO-8 in Q1-2022.

In response to 2021 NPCC Corporate Reliability Objective IA-3, CO-11 also assessed critical telecommunications interdependency risks and identified best available mitigation actions with the IST-2 Working Group. A final report was submitted to the RCC for their November 30, 2021 meeting, following the TFCO's recommendation for endorsement.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON COORDINATION OF OPERATION

Item	Name	Assignment
CO-12	Operations Planning Working Group	Review the overall reliability of the generation and transmission system in the NPCC Region for the Summer and Winter Seasonal conditions.
	Status/ Comments:	<p>The CO-12 Working Group recently finalized the 2021-2022 NPCC Winter Reliability Assessment effort and final results were sent to the RCC for approval on November 19, 2021. The assessment was developed in conjunction with the NPCC CP-8 Working Group and was coordinated to align with the NERC Reliability Assessment Subcommittee and subsequent 2021-2022 NERC Winter Reliability Assessment (WRA). The 2021-2022 NERC WRA published on November 18, 2021. Prior to the November 19 RCC submittal, the assessment was approved by the TFCO and TFCP, on November 9 and 10 respectively.</p> <p>At the direction of the Coordination of Operation (TFCO), the CO-12 Working Group met frequently throughout Summer 2021 with CP-8 to discuss enhancements and sensitivities to the 2021-2022 NPCC Winter Reliability Assessment to account for abnormal weather conditions.</p> <p>CO-12 will begin work with CP-8 on the 2022 NPCC Summer Reliability Assessment in late January 2022.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON COORDINATION OF PLANNING

Item	Name	Assignment
CP- 8	Working Group on Review of Resource and Transmission Adequacy	Review the overall reliability of the NPCC Areas and perform pre-seasonal resource adequacy assessments.
	Status/ Comments:	The CP-8 Working Group has completed the <i>NPCC 2021 Long Range Adequacy Overview</i> ; the Task Force on Coordination of Planning has reviewed the report and has submitted it for approval at the November 30, 2021 RCC meeting.

Item	Name	Assignment
CP- 2021S	Summer 2021 Multi-Area Probabilistic Reliability Assessment	Assess NPCC Area reliability by estimating the projected use of Area Operating Procedures designed to mitigate resource shortages for the summer (May through September) period.
	Status/ Comments:	Following the Task Force on Coordination of Operation and the Task Force on Coordination of Planning approvals, the results of the <i>NPCC 2021 Summer Reliability Assessment</i> were presented to the NPCC Board of Directors on May 5, 2021. The NPCC 2021 Summer Media release followed on May 6, 2021.

Item	Name	Assignment
CP- 2021-22W	Winter 2021-2022 Multi-Area Probabilistic Reliability Assessment	Assess NPCC Area reliability by estimating projected use of Area Operating Procedures designed to mitigate resource shortages for the winter (November through March) period.
	Status/ Comments:	The CP-8 Working Group has initiated the <i>NPCC Winter 2021-2022 Multi-Area Probabilistic Assessment</i> . The Task Force on Coordination of Planning approved the assumptions at their September 13, 2021 meeting; the assessment will be submitted to the RCC for approval at their November 30, 2021 meeting.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON COORDINATION OF PLANNING

Item	Name	Assignment
TIE	NPCC 2021 Tie Benefits Report	Estimate NPCC Area Annual Tie Benefits for a five-year period, assuming a hypothetically “At Criteria” and “As Is” system representation, applying consistent methodology and assumptions to all NPCC Areas, using the same multi-area reliability model.
	Status/ Comments:	<p>The Task Force on Coordination of Planning (TFCP) approved the Scope of Work for the <i>NPCC 2021 Tie Benefits Report</i> at its February 10, 2021 meeting. The CP-8 Working Group has initiated the analysis following the finalization of the NERC Long Term Reliability Assessment data by the NERC Reliability Assessment Subcommittee in July 2021.</p> <p>The TFCP will be reviewing the draft <i>NPCC 2021 Tie Benefits Report</i> at its December 14, 2021 meeting.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON SYSTEM STUDIES

Item	Name	Assignment
SS-38	Inter-Area Dynamic Analysis Working Group	Assigned to analyze dynamic phenomena, which may affect interconnected system reliability, especially in the area of low frequency oscillations.
	Status/ Comments:	The SS-38 Working Group members is evaluating other transient stability software tools using the 2019 Series MMWG base case with user written models removed to compare dynamic system responses and to have an alternative backup software. The Working Group is transitioning to a new leadership in 2022 and should be able to wrap up its software evaluation effort by early 2022. In 2022, the Working Group plans to develop the Terms of Reference for the UFLS Adequacy Assessment and will begin development the base case for this assessment which should be completed by the end of 2023.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON SYSTEM STUDIES

Item	Name	Assignment
SS-37	Base Case Development Working Group	On an annual basis, develop a library of solved power flow cases and associated dynamic data.
	Status/ Comments:	<p>MMWG 2021 Power Flow Cases In October the MMWG finalized the twelve (12) 2021 Series power flow cases. The SS-37 Working group commenced case development activities in April and continued to update the power flow cases through the various trials throughout the year leading up to the October approval. The SS-37 Working Group also developed an additional 2026 Spring Light Load case on the recommendation of the Task Force on System Studies (TFSS).</p> <p>MMWG 2021 Dynamic Cases The SS-37 Working Group submitted the initial dynamics case data package to the MMWG Coordinator in August and will continue to address dynamic case issues as they arise throughout the trials conducted by the MMWG Coordinator. Providing Composite Load Model Data (CMLD) for all eight (8) dynamics cases is required by the MMWG for the 2021 series, SS-37 members are working to meet this requirement.</p> <p>Automation Sub-Group The SS-37 Automation Sub-Group continues to develop tools to make the power flow and dynamic case building process more efficient. Prioritizing the power flow build as that is the first major build for SS-37 Working Group. The power flow and dynamics text recognition tool is currently under a testing process to find operational bugs and provide feedback for the developers. The Automation Sub-Group is looking to set a list of deliverables for the 2022 year.</p> <p>Short Circuit Sub-Group The SS-37 Short Circuit Sub-Group held a meeting on October 13 to continue discussions on methods for achieving consistency in their models at boundary buses and share best practices. It was agreed to conduct an exercise similar to the one conducted during 2020 in which short circuit MVA calculations made independently at boundary buses by two neighbors are compared. This effort is expected to be complete by December 1, 2021.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON SYSTEM STUDIES

Item	Name	Assignment
SS-39	Geomagnetic Disturbance Working Group	Develop a White Paper recommending voluntary guidelines to address R3, R4, and R8 of NERC Standard TPL-007-4.
	Status/ Comments:	<p>The SS-39 Working Group has divided its scope of work into the following tasks: 1) develop criteria for acceptable system steady state voltage performance; 2) define “events” to use for vulnerability assessments; 3) develop common practices for GMD related case set-up and conditioning; and 4) develop common practices on methodology for applying and studying the effects of the “events” defined in 3).</p> <p>The Working Group compiled information for all tasks and prepared a draft White Paper for presentation to the Task Force on System Studies (TFSS). At their November 9 & 10, 2021 meeting, TFSS members agreed to defer review and approval of the white paper until the next meeting which will take place on January 25 & 26, 2022. The Working Group will continue to revise the white paper during the remainder of 2021 and issue an initial draft to TFSS in January 2022.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

TASK FORCE ON SYSTEM PROTECTION

Item	Name	Assignment
SP-7	Working Group on Review Of Protection System Misoperations	Review and analyze misoperations of transmission and generation protection systems and special protection systems on the bulk electric system and report on the statistics of misoperations as they occur in the NPCC region including lessons learned and implementation of corrective action plans by registered entities.
	Status/ Comments:	<p>The Task Force on System Protection reviewed the status of SP-7 Working Group on Protection System Misoperation Review as completed through Q2 of 2021. The total number of misoperations for Q2 2021 is 48 compared to the NPCC Q2 quarterly average of 40 misoperations. This is the highest misoperation reported for the Q2 in the past four years. The misoperation rate for Q2 2021 is 12.15%. This is the highest misoperation rate reported for the past four years. The cumulative misoperation rate as of 2017 is 8.09%. Note that during this quarter, only 395 operations were reported compared to the Q2 quarterly average of 460 operations.</p> <p>The Misoperation rate, as calculated by NERC, is adversely affected if either the number of Misoperation increases, or the number of Operations decreases. For 2021 Q2, NPCC Misoperation Rate was affected as both of the number of Misoperation (when compared to Q2 average) increased by 20% and the number Operations decreased by approximately 15%. It is important to note that variations in the number of Operations will not necessarily result in proportional change in the number of Misoperations, this is because not all Misoperations occur "During fault". In fact, for 2021 Q2, there were 36 "Misoperations Other than Fault", and only 12 "Misoperations During Fault".</p> <p>In general, lower number of operations is desirable for the system reliability and may occur as a result of fair weather condition or other favorable system/environmental conditions. Vegetation management program and replacement of old equipment may also result in reducing number of operations.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

Eastern Interconnection Reliability Assessment Group

<u>Item</u>	<u>Name</u>	<u>Assignment</u>
ERAG	Eastern Interconnection Reliability Assessment Group	The Eastern Interconnection Reliability Assessment Group (ERAG) oversees the Multi-Regional Modeling Group (MMWG) steady state and dynamics base case development, Eastern Interconnection interregional assessment activities and other interregional matters of interest.
	Status/ Comments:	<p><u>Eastern Interconnection (EI) MOD-032 Designee</u> A new MOD-032 designee agreement continues to be developed for execution by NERC and the EI Regional Executives to codify ERAG as the permanent MOD-032 designee. Upon receipt of the draft updated agreement from NERC, ERAG will incorporate the document into its revised ERAG agreement and request NPCC Legal to review and comment. Currently, ERAG is operating under an interim MOD-032 designee agreement.</p> <p><u>Multiregional Modeling Working Group (MMWG) Update</u> Key items of interest include:</p> <ul style="list-style-type: none"> • The approved 2021 Series MMWG steady-state cases were released for use on October 8, 2021. Work on the dynamics cases is currently in progress. • During 2021, CMLD data was used for one dynamics case as a pilot program. For 2022, CMLD data will be used for all dynamics cases. • The MMWG is determining potential liability issues with planning coordinators sharing automation scripts. Although scripts reduce case development time and identify data quality issues, there is concern that adverse results from their use could result in liability by the developer of the scripts.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

Eastern Interconnection Reliability Assessment Group

<u>Item</u>	<u>Name</u>	<u>Assignment</u>
ERAG	Eastern Interconnection Reliability Assessment Group	<p>The Eastern Interconnection Reliability Assessment Group (ERAG) oversees the Multi-Regional Modeling Group (MMWG) steady state and dynamics base case development, Eastern Interconnection interregional assessment activities and other interregional matters of interest.</p> <p><u>Request for Proposal (RFP) of a MOD-032 Case Developer</u></p> <p>ERAG issued an RFP to select organizations to obtain competitive bids for the potential replacement of the current case developer under contract by ERAG. The RFP was issued to five organizations on March 9, 2021. Responses to the RFP were forwarded to the MMWG Chair for evaluation. MMWG provided ERAG with a recommendation for MOD-032 Case Developer in September. ERAG members and MMWG agreed that Powertech Labs would be the selected bidder.</p> <p><u>Planning Coordinator Assessment – DER Penetration</u></p> <p>A workshop on the topic of DER Penetration took place on October 26, 2021 and was attended by nearly 200 participants. Presenters included representatives from ISO New England, NPCC, MISO, PJM, and NERC who spoke on various topics including DER integration programs, data collection issues, and impacts on transmission planning studies. An overview of the System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG) and its subgroups was also provided.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

Eastern Interconnection Reliability Assessment Group

ERAG Seasonal Working Group

Item	Name	Assignment
ERAGWG	ERAG Seasonal Working Group	The ERAG Seasonal Working Group conducts appraisals of the Eastern Interconnection. Appraisals are conducted for weather scenarios, including drought and polar vortex type conditions, to determine the impacts on power flows across the Eastern Interconnection.
	Status / Comments:	The ERAG Working Group remains inactive until an ERAG-conducted system study is initiated.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

North American Electric Reliability Corporation (NERC)

Item	Name	Assignment
RAS	Reliability Assessment Subcommittee	<p>Conduct an annual review of the overall reliability of the existing and planned generation and transmission system of the six Regional Reliability Entities for the ten-year horizon. Conduct semiannual seasonal assessments of the overall reliability of the existing generation and transmission systems of the six Regional Reliability Entities.</p> <p>Status/ Comments: The NERC Reliability Assessment Subcommittee (RAS) met on April 13-14, 2021, to discuss the 2021 Summer Reliability Assessment (SRA), the 2021 Long-Term Reliability Assessment (LTRA), and the 2021-22 Winter Reliability Assessment (WRA). The RAS will meet next on July 13-15, 2021, to review the draft 2021 LTRA. The RAS also endorsed the NERC Probabilistic Assessment Working Group developed 2020 ProbA Regional Risk Scenarios and Data Collections Technical Reference Reports for NERC Reliability and Security Technical Committee (RSTC) approval at their June 2021 meeting.</p> <p>NERC 2021-2022 Winter Reliability Assessment (WRA) Preliminary narrative and data submissions, coordinated by the NPCC CO-12 and CP-8 Working Groups, were submitted to NERC on September 14 and 24, 2021 respectively. The draft WRA was reviewed by the RAS and endorsed by the RSTC. A webinar was held on November 18, 2021, along with a subsequent assessment release.</p> <p>NERC 2021 Long-Term Reliability Assessment The RAS requested each Region's assistance in assessing the long-term (10-year) reliability of their Region (as outlined in the ERO Reliability Assessment Process Document) on February 12, 2021. Initial narrative and data responses, coordinated by the NPCC CP-8 Working Group, were submitted to NERC by June 18, 2021. The RAS completed a peer review process in July 2021 and final responses were submitted by July 30, 2021. NERC is targeting a release of the public report by December 14, 2021, following the RAS, NERC RSTC, and NERC Board of Trustees reviews.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

North American Electric Reliability Corporation (NERC)

Item	Name	Assignment
PAWG	NERC Probabilistic Assessment Working Group	Advance the work initiated by the NERC Generation & Transmission Reliability Planning Models Task Force (GTRPMTF) and the Probabilistic Assessment Improvement Task Force (PAITF) in the conduct of NERC’s Core probabilistic assessments. Coordinate and promote the alignment of probabilistic resource adequacy assessments conducted by the ERO and industry.
	Status/ Comments:	<p>The NERC Probabilistic Assessment Working Group (PAWG) most recently met on November 16-17, 2021 to discuss preliminary 2022 NERC Probabilistic Assessment (ProbA) planning efforts. The PAWG most recently hosted the 2nd biennial 2021 NERC Probabilistic Analysis Forum (PAF) on October 5-7, 2021. The PAF featured presentations approximately 25 international speakers and was attended by over 150 industry participants. Additionally, the group published the 2020 NERC ProbA Sensitivity Case results through the Regional Risk Scenario Report and the Data Collections Approaches for Probabilistic Assessments Technical Reference Report in June 2021. These reports were endorsed by the NERC Reliability Assessment Subcommittee and approved by the NERC Reliability & Security Technical Committee (RSTC).</p> <p>The PAWG is developing a whitepaper on Probabilistic Planning for Tail Risks. This whitepaper is expected to be completed in Q4 – 2022 and will explore best practices and modelling approaches to extreme events in probabilistic resource adequacy planning processes.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

North American Electric Reliability Corporation (NERC)

Item	Name	Assignment
TADSUG	Transmission Availability Data System	<p>Serve as the Regional Entity Coordinator in support of the NERC TADS outage data collection and the analysis of the NPCC Transmission Owners (TO) outage information. Oversee the use of and the data entry of automatic outage information by the TO in the NERC Internet based data management tool - webTADS.</p> <p>Status/ Comments:</p> <p>In December 2020, the TADS Working Group became the TADS User Group (TADSUG). The TADSUG performs the same functions as the TADSWG; however, it no longer reports into the NERC Committee structure. Instead, it reports to the NERC Performance Analysis Department. The User Group holds monthly calls; the last one was conducted on August 17, 2021.</p> <p>NERC conducted a training on November 9, 2021. The training was comprised of ten modules. The modules were background, data entry demo, checklist completion, in service state / TADS reportable, outage types, cause codes, fault types, outage modes, outage ID and event ID Codes and examples to cause code. Training is intended for all members of industry with roles relating to TADS. Examples of roles include data gathering, data entry, and data quality reviews.</p> <p>Benefits of attending include learning the essentials of cause coding transmission outages as well as learning effective methods for avoiding common hurdles and best practices for TADS reporting.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

North American Electric Reliability Corporation (NERC)

Item	Name	Assignment
DADSUG	Demand Availability Database System	Serve as the Regional Entity Coordinator in support of the DADS data collection and analysis for NPCC. Oversee the collection of the data in the NERC Internet based data management tool – web DADS.
	Status/ Comments:	<p>In December 2020, the DADS Working Group became the DADS User Group (DADSUG). The DADSUG performs the same functions as the DADSWG; however, it no longer reports into the NERC Committee structure. Instead, it reports to the NERC Performance Analysis Department. In response to the recent coronavirus (COVID -19) developments, NERC extended the Q1 reporting deadline for all Section 1600 applications to June 29, 2020.</p> <p>The DADS User Group worked on its Scope to develop a process for soliciting and evaluating DADS changes and recommend selected improvements, such as changes to definitions, metrics, Demand Response Programs. The DADS User Group also discussed the Severity Risk Index correlation with Demand Response Event Days. The DADS User Group has started working on clarification of DADS reporting criteria.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

North American Electric Reliability Corporation (NERC)

<u>Item</u>	<u>Name</u>	<u>Assignment</u>
GADSUG	Generator Availability Data System	Serve as the Regional Entity Coordinator in support of the Generator Availability data collection and Data System analysis for NPCC. Oversee the collection of the data in the NERC Internet based data management tool – web E-GADS.
	Status/ Comments:	<p>In December 2020, the GADS Working Group became the GADS User Group (GADSUG). The GADSUG performs the same functions as the GADSWG, however, it no longer reports into the NERC Committee structure. Instead, it reports to the NERC Performance Analysis Department. A conference call held on October 26, 2021.</p> <p>2020 was the first year of having complete data for GADS Wind. Mandatory Reporting for all wind plants with a Total Installed Capacity of 75 MW or greater. The full year of the phased in reporting for GADS Wind will be completed at the end of March 2021. After the completion of phased in reporting, additional GADS wind Validations may be developed.</p> <p>In 2021, a virtual training was offered on conventional reporting for GADS. The purpose of the training was to assist reporters in using a uniform approach to reporting and measuring North American generating plant availability, performance, and other related reliability data.</p> <p>The GADSUG offered the training on the following dates:</p> <ul style="list-style-type: none">• November 1, 2021 - Introductory Session for new conventional GADS reporters• November 2, 2021 - Conventional GADS• November 3, 2021 - Conventional GADS Appendix F Equations



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

North American Electric Reliability Corporation (NERC)

Item	Name	Assignment
MIDASUG	Misoperation Data Analysis System User Group	<p>Serve as the Regional Entity Coordinator in support of the Misoperation data collection and Data System analysis for NPCC. Oversee the collection of the data in the NERC Internet based data management tool – MIDAS.</p> <p>Status/ Comments:</p> <p>In December 2020, the MIDAS Working Group became the MIDAS User Group (MIDASUG). The MIDASUG performs the same functions as the MIDASWG; however, it no longer reports into the NERC Committee structure. Instead, it reports to the NERC Performance Analysis Department. The User Group holds monthly calls. A WebEx call was held on January 5, 2021.</p> <p>The 2021 MIDAS Data Reporting Instructions (DRI) have been posted to NERC’s website. The document is intended to provide guidance for MIDAS reporting as detailed in the Section 1600 Data Request and is not intended as guidance for any NERC Standards Compliance. The document is used for identifying Composite Protection Systems that should be reported in MIDAS, determining the number of Composite Protection System Operations to report quarterly, and identifying and coding Misoperations.</p> <p>MIDASUG conducted MIDAS Virtual Training on the following dates:</p> <ul style="list-style-type: none"> ✓ October 5, 2021 – MIDAS 101 Training ✓ October 6, 2021 – MIDAS Portal Training <p>The purpose of the Misoperations reporting and MIDAS Portal training is to assist reporters in using a uniform approach to reporting misoperations and protection system operations using the Misoperation Information Data Analysis System (MIDAS) portal. Benefits of attending include learning the essentials of reporting misoperations as well as learning effective methods for avoiding common hurdles and best practices for MIDAS reporting.</p> <p>The regions discussed their process of collecting Remedial Action Schemes (RAS) Operations/Misoperations quarterly reports. The MIDASUG is in the process of requesting an interpretation by the PRC-004 Standard Drafting Team for the definition of Misoperation. The MIDASUG also discussed compliance requirement DP-UFLS entities.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Reliability Assessment and Performance Analysis Program

OTHER

Item	Name	Assignment
IPSAC	Interregional Planning Stakeholder Advisory Committee	<p>The Interregional Planning Stakeholder Advisory Committee (IPSAC) is an open stakeholder group that provides input for the development of the Northeast Coordinated System Plan (NCSP). The NCSP outlines activities conducted jointly by ISO New England, New York ISO, and PJM.</p> <p>Status/ Comments: The IPSAC held a WebEx meeting on October 29, 2021. Agenda items included an Offshore Wind Integration update from PJM, ISO New England, and the New York ISO, a study request from Clean Energy Advocates and Shell Energy North America. The next stakeholder meeting is scheduled for December 10, 2021.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Situation Awareness and Infrastructure Security Program

TASK FORCE ON COORDINATION OF OPERATION

Item	Name	Assignment
CO-10	Operational Tools Working Group	<p>The Operational Tools Working Group (CO-10) is responsible for taking a lead role in the development of NPCC and NERC operational tools (e.g., electronic tagging, the NERC Interchange Distribution Calculator and electronic scheduling), including hardware, software, and integrated systems. The Operational Tools Working Group will define the need for operational tools, evaluate the cost benefits of operational tools, coordinate their implementation within NPCC and coordinate common training in the use of operational tools.</p>
	Status/ Comments:	<p>The CO-10 Working Group continues to review of tool failures and associated lessons learned as generated from the NERC Event Analysis Program and develops regional insights templates from the review of NERC EMS/SCADA lessons learned to further aid NPCC entities in utilizing these valuable lessons.</p> <p>At its November 18-19, 2021 meeting, the CO-10 Working group began the analysis for the development of the Critical Operating Tool Failure Analysis (COTFA) report which much wait to be drafted until year's end to obtain all the required data to be completed. Drafting of how the data will be presented will also be reviewed at this meeting with the intention of finalizing the report at the February 2022 meeting before presenting it to TFCO in March 2022. The group will also finalize the annual TFCO Working Group Status Report for CO-10 and submit it to TFCO upon completion.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Situation Awareness and Infrastructure Security Program

TASK FORCE ON INFRASTRUCTURE SECURITY AND TECHNOLOGY (TFIST)

Item	Name	Assignment
IST-1	Infrastructure Security and Technology (TFIST) Workshop	Periodic workshops presentations to address timely issues and update member system personnel associated with the provision of on-line computer systems for operation of the power system. Last Workshop: November 2019

Status/ Comments:

The Task Force on Infrastructure Security & Technology (TFIST) presented at NPCC’s Fall 2019 Standards & Compliance Workshop. TFIST expected to present at the NPCC’s 2020 Standards & Compliance Workshops; however, the virtual workshop format did not allow time for a TFIST update. The TFIST expects to present at NPCC’s Spring 2022 Standards and Compliance Workshop.

Item	Name	Assignment
IST-2	Telecommunications Working Group	Provide a forum to identify, discuss and advance the technology of Telecommunications Infrastructure for the reliable operations of the NPCC Bulk Power System. The Telecommunications Working Group (IST-2) will also support the Task Force on Infrastructure Security & Technology in their work on issues related to Telecommunications.

Status/ Comments:

The Working Group provided their 2020 annual report at the May 26, 2021 meeting. The IST-2 Working Group continues to support this testing.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Situation Awareness and Infrastructure Security Program

TASK FORCE ON INFRASTRUCTURE SECURITY AND TECHNOLOGY (TFIST)

Item
IST-4

Name
Cyber Security

Assignment

The purpose of the Cyber Security Working Group is to address specific cyber security issues that are assigned by the TFIST. Although these cyber security topics are assigned by the TFIST, they may be developed by any Task Force or Working Group that require a response or a coordinated effort between Task Forces regarding a cyber security matter.

Status/ Comments:

At its August 14-15, 2019 meeting, the Task Force on Coordination of Operation (TFCO) discussed the recently filed for regulatory approval CIP-012-1 standard and its implementation plan. TFCO members agreed that the impacted NPCC RCs, BAs and TOPs would benefit from a coordinated approach to meeting the requirements of the CIP-012-1 standard. On November 10, 2019, the TFCO requested TFIST consider standing-up ad-hoc Working Group IST-4.

IST-4's whitepaper was posted for Open Process comments from June 14, 2021 to July 29, 2021. The Task Force on Infrastructure Security and Technology (TFIST) approved IST-4's responses which did not change the whitepaper. In August 2021, TFIST and the Task Force on Coordination of Operations approved the CIP-012 Whitepaper for Reliability Coordinating Committee's (RCC) approval. This whitepaper is on the RCC's September 8, 2021 agenda for approval.



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Situation Awareness and Infrastructure Security Program

TASK FORCE ON INFRASTRUCTURE SECURITY AND TECHNOLOGY (TFIST)

Item	Name	Assignment
IST-5	Physical Security Working Group	<p>The Physical Security Working Group exchanges information regarding approaches to physical security to enhance the reliability and resiliency of the BPS. The Physical Security Working Group (IST-5) also supports TFIST in their work on issues related to Physical Security.</p>
	Status/ Comments:	<p>The Working Group continues to develop the living “Emerging Trends” guidance document through collaboration with industry physical security experts and Physical Security Working Group (PSWG) members regarding reemerging threat vectors, suggested mitigation practices, technologies and continued lessons learned as a result of the current COVID-19 pandemic. Member entities continue to contribute changes and adaptations that are needed to their Security plans as new issues and situations arise. This will continue to be an ongoing exercise to address both emerging threat trends and new issues regarding the COVID-19 pandemic. Members of the PSWG continue to share physical security approaches and mitigations to unique situations posed by the COVID-19 pandemic. The Working Group held their 2021 Q2 meeting in a virtual setting on June 9, 2021 with 48 attendees. Meetings will continue to be held in virtual settings until the end of the COVID-19 pandemic. 2021 Q3 meeting was held on September 16, 2021, in a virtual setting. Items on the agenda for discussion were back to work plans, emerging threats and trends and collaboration with the Gas Sector (AGA) through the attendance of their Managing Director, Security and Operations and Intelligence analysts. Gas representatives shared intelligence on what they considered emerging threats and trends and their security strategies to combat those issues. The 4th Quarter NPCC PSAG meeting has been scheduled for December 15, 2021.</p> <p>Members of the Working Group and NPCC staff continue to work closely with the NERC E-ISAC and Pacific Northwest National Labs to develop a virtual version of the Design Basis Threat program. An NPCC Registered Entity has volunteered their site to be used for development of a generic site with attributable characteristics removed so the site cannot be identified. GPS mapping of the virtual site is expected to be completed in late September due to travel restrictions on Pacific Northwest National Labs which are expected to be lifted in early September. GPS mapping, assessment and characterization of the site was completed in October. A final 3d model of the site is expected to be completed by the 1st Quarter 2022. To date, NPCC Staff has participated as a co-facilitator in three remote programs that have been presented for volunteer entities in other regions, using their specific sites, with lessons learned from each being incorporated into the development process of the virtual program. Three NPCC Registered Entities have expressed an interest in conducting a DBT exercise face to face at their sites when Pandemic restrictions are lifted.</p>



RELIABILITY ASSESSMENT PROGRAM HIGHLIGHTS

Administrative Services

MEMBERS' FORUMS

Item	Name	Assignment
General	NPCC General Meeting	To promote the reliable and efficient operation of the interconnected bulk power systems in Northeastern North America, NPCC invites high level policy makers from Federal, Provincial, and State regulatory and/or Governmental authorities and senior executives within NPCC to identify and discuss emerging issues related to the reliability of the NPCC Region.
	Status/ Comments:	Due to the current COVID-19 pandemic, the timing of next the NPCC General meeting will be reviewed later in 2022.
Item	Name	Assignment
Gov/Reg	NPCC Governmental Regulatory Affairs Advisory Group	To provide a forum where industry and governmental and/or regulatory representatives can exchange views and strive to develop consensus policy recommendations on reliability issues specific to the NPCC Region and share actionable information related to regional energy and reliability matters.
	Status/ Comments:	Due to the current COVID-19 pandemic, the timing of the next NPCC Governmental/Regulatory Affairs Advisory Group meeting will be reviewed later in 2022.
Item	Name	Assignment
PIC	Public Information Committee	To highlight and summarize NPCC activities and accomplishments and disseminate appropriate information to the media, as well as respond to related requests for information.
	Status/ Comments:	NPCC continues to participate in communications coordination with NERC and the Regions. On May 6, 2021, the <i>NPCC 2021 Summer Reliability Assessment</i> Media statement was released.