NPCC REGIONAL STANDARDS COMMITTEE

AGENDA FOR MEETING #23-2

May 24, 2023, 10:00 a.m. – 3:00 p.m. EDT **WebEx Meeting**

Dial-In: 415-655-0003 (USA) / 416-915-6530 (Canada)
Guest Code: 24371208222
Password: 3p9BkGs3gG* (37925473 from phone)
WebEx Link

For Reference:
Glossary of Terms Used in NERC Reliability Standards, dated December 2, 2022
NPCC Glossary of Terms, dated August 10, 2021

Introductions, Safety Message and Chair's Remarks

NPCC Antitrust Compliance Guidelines

Agenda Items:

1.0 Meeting Agenda

2.0 RSC Meeting Minutes (Approval Item)

3.0 Items Requiring RSC Discussion/Endorsement

3.1 FERC Activities
3.2 PRC-006-NPCC-3 RSAR
3.3 NPCC 2023 Corporate Reliability Goal II-2 - IEEE 2800
3.4 NPCC Office

4.0 NERC Reliability Standards

http://www.nerc.com/pa/Stand/Pages/Standards-Under-Development.aspx

4.1 Currently Posted Projects

Project	Comment Period End Date	Ballot Period End Date
Project 2016-02 Modifications to CIP Standards Norm Dang from IESO @ 1:00 PM	10/7/22 (F)	10/7/22 (A)
Project 2017-01 Modifications to BAL-003-1.1 David Lemmons from Greybeard Compliance Services @ 1:15 PM	6/1/22 (F)	6/1/22 (A)
Project 2019-04 Modifications to PRC-005-6 Giuseppe Giannuzzi from HQ @ 1:30 PM	8/25/21 (F)	

Project 2020-04 Modifications to CIP-012 Joe Gatten from Xcel Energy @ 1:45 PM	11/29/22 (F)	11/29/22 (A)
Project 2020-06 Verifications of Models and Data for Generators Chris Larson @ 2:30 PM	1/18/23 (F)	1/18/23 (A)
Project 2021-01 Modifications to MOD-025 and PRC-019 Ruida Shu	6/8/23 (F)	6/8/23 (A)
Project 2021-02 Modifications to VAR-002 Chris Larson @ 2:30 PM	6/23/23 (F)	6/23/23 (I)
Project 2021-03 CIP-002 Transmission Owner Control Centers Chris Larson @ 2:30 PM	3/31/23 (F)	
Project 2021-06 Modifications to IRO-010 and TOP-003 Matthew Harward @ 2:00 PM	6/20/23 (F)	6/20/23 (A)
Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination Kenny Lubbert or Matthew Harward @ 2:15 PM	4/13/23 (F)	4/13/23 (I)
Project 2021-08 Modifications to FAC-008 Ruida Shu	1/27/22 (F)	
Project 2022-01 Reporting ACE Definition and Associated Terms Ruida Shu	3/16/23 (F)	3/16/23 (I)
Comments: (I) – Informal; (F) – Formal; (N) – Nomination Period **Ballots:** (I) – Initial; (A) – Additional; (F) – Final		

4.2 Ballot History (Since last RSC Meeting)
4.3 Comment Form History (Since last RSC Meeting)

5.0 NPCC Non-Standards

https://www.npcc.org/Standards/SitePages/NonStandardsList.aspx

5.1 Items for Discussion
5.1.1 Directory#1 Design and Operation of the BPS --- Jt. Planning/Ops Review

6.0 RSC Member Items of Interest

6.1 RSC Roster

7.0 Standards Activity Post NERC BOT Approval

(Since last RSC Meeting)

7.1 NERC Filings to FERC
http://www.nerc.com/FilingsOrders/Pages/default.aspx
7.2 FERC Orders / Rules
http://www.nerc.com/FilingsOrders/Pages/default.aspx
7.3 Federal Register
https://www.federalregister.gov/
7.4 FERC Sunshine Act Meeting Notice
7.5 FERC Open Meeting Summaries

8.0 NERC Meetings

8.1 Standards Committee (SC)
http://www.nerc.com/comm/SC/Pages/default.aspx

January 25th – Call	February 22th – Call	March 22nd – SPP
April 19th – Call	May 17th – Call	June 21st – Call
July 19th – MRO	August 23rd – Call	September 20th – NERC
October 18th – Call	November 15th – Call	December 13th – NERC

8.2 Board of Trustees (BOT) Meeting
http://www.nerc.com/gov/bot/Pages/Agenda-Highlights-and-Minutes-.aspx

February 15-16 – Tuscan, AZ	May 3-4 – Hybrid Schedule	August 15-17 – Ottawa, ON
December TBD - Virtual		

9.0 NERC Items of Interest (Since last RSC Meeting)

9.1 Lessons Learned
http://www.nerc.com/pa/rrm/ea/Pages/Lessons-Learned.aspx

9.1.1 There has been one new Lesson Learned issued since the last RSC meeting.

9.2 Alerts
http://www.nerc.com/pa/rrm/bpsa/Pages/Alerts.aspx
There has been one new NERC Alerts released since the last RSC meeting.

9.3 NERC Reliability and Security Guidelines
https://www.nerc.com/comm/Pages/Reliability-and-Security-Guidelines.aspx

9.4 NERC Rules of Procedure
https://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx

9.5 FERC and NERC Encourage NAESB to Convene Gas-Electric Forum
FERC, NERC Encourage NAESB to Convene Gas-Electric Forum to Address Reliability Challenges

9.6 2022 State of Reliability Report
Report (nerc.com)

9.7 NERC 2022 Annual Report
NERC_Annual Report_2022.pdf

10.0 Future RSC Meetings and Conference Calls

10.1 RSC 2022 Meeting Dates

February 22nd - WebEx
May 24-25th – NYISO and WebEx
August 9-10th – Location TBD and WebEx
October 11-12th – Location TBD and WebEx
December 7th - General Meeting and WebEx

Northeast Power Coordinating Council, Inc. (NPCC)

Antitrust Compliance Guidelines

It is NPCC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. The antitrust laws make it important that meeting participants avoid discussion of topics that could result in charges of anti-competitive behavior, including: restraint of trade and conspiracies to monopolize, unfair or deceptive business acts or practices, price discrimination, division of markets, allocation of production, imposition of boycotts, exclusive dealing arrangements, and any other activity that unreasonably restrains competition.

It is the responsibility of every NPCC participant and employee who may in any way affect NPCC's compliance with the antitrust laws to carry out this commitment.

Participants in NPCC activities (including those participating in its committees, task forces and subgroups) should refrain from discussing the following throughout any meeting or during any breaks (including NPCC meetings, conference calls and informal discussions):

- Industry-related topics considered sensitive or market intelligence in nature that are outside of their committee's scope or assignment, or the published agenda for the meeting;
- Their company's prices for products or services, or prices charged by their competitors;
- Costs, discounts, terms of sale, profit margins or anything else that might affect prices;
- The resale prices their customers should charge for products they sell them;
- Allocating markets, customers, territories or products with their competitors;
- Limiting production;
- Whether or not to deal with any company; and
- Any competitively sensitive information concerning their company or a competitor.

Any decisions or actions by NPCC as a result of such meetings will only be taken in the interest of promoting and maintaining the reliability and adequacy of the bulk power system.

Any NPCC meeting participant or employee who is uncertain about the legal ramifications of a particular course of conduct or who has doubts or concerns about whether NPCC's antitrust compliance policy is implicated in any situation should call NPCC's General Counsel and Corporate Secretary, Mr. Damase Hebert at (646) 737-2335 or dhebert@npcc.org.

NPCC REGIONAL STANDARDS COMMITTEE

AGENDA FOR MEETING #23-1

February 22, 2023, 10:00 a.m. – 3:00 p.m. EDT **WebEx Meeting**

Dial-In: 415-655-0003 (USA) / 416-915-6530 (Canada)
Guest Code: 24269113888
Password: S6mGdmV7T@6 (76643687 from phone)
WebEx Link

For Reference:
Glossary of Terms Used in NERC Reliability Standards, dated December 2, 2022
NPCC Glossary of Terms, dated August 10, 2021

Attendance:

	Name	Organization	Sector(s)	Day(s)
1.	Gerry Dunbar	Northeast Power Coordinating Council		1
2.	Ruida Shu	Northeast Power Coordinating Council		1
3.	Michael Keane	FERC	Guest	1
4.	Alain Mukama	Hydro One	1	1
5.	Catherine Ethier	Ontario Energy Board	Guest	1
6.	Chantal Mazza	Hydro Quebec	2	1
7.	Constantin Chitescu	OPG	4	1
8.	Damian Interrante	Central Hudson Gas & Electric	1	1
9.	Erin Wilson	NB Power	1	1
10.	Harish Vijay Kumar	IESO	2	1
11.	Herb Schrayshuen	Power Advisors, LLC	Guest	1
12.	Jeff Streifling	NP Power		1
13.	James Grant	NYISO	2	1
14.	Joel Charlebois	AESI	7	1
15.	Junji Yamaguchi	Hydro Quebec	1	1
16.	Libin Varghese	NYPA	Guest	1
17.	Lincoln Burton	Con Edison	3	1
18.	Lodie White	FERC	Guest	1
19.	Michael Courchesne	ISO-NE	Guest	1
20.	Michael Jones	National Grid	3	1
21.	Michael Ridolfino	CHG&E	1	1

22.	Michael Takla	OPG	1	1
23.	Michele Shafer	The United Illuminating Company	1	1
24.	Michele Tondalo	The United Illuminating Company	1	1
25.	Michael Foley	Con Edison	4	1
26.	Nicolas Turcotte	Hydro Quebec	2	1
27.	Prada Mitchell, Silvia	Next Era	4	1
28.	Randy Buswell	VELCO	1	1
29.	Salvatore Spagnolo	NYPA	4	1
30.	Sean Bodkin	Dominion	4	1
31.	Searle, Jill	NS Power	Guest	1
32.	Stephanie Ullah-Mazzuca	Orange and Rockland	1	1
33.	Tobi Ajay	OPG	Guest	1
34.	Vijay Puran	NYDPS	6	1
35.	Wes Yoemans	NYSRC	Guest	1
36.	Norm Dang	IESO	Guest	1
37.	David Lemmons	Greybeard Compliance Service	Guest	1
38.	Giuseppe Giannuzzi	Hydro Quebec	Guest	1
39.	Latrice Harkness	NERC	Guest	1
40.	Matthew Harward	SERC	Guest	1
41.	Latrice Harkness	NERC	Guest	1
42.	Josh Blume	NERC	Guest	1

Introductions, Safety Message and Chair's Remarks
Gerry Dunbar provided remarks on NERC standard development activities.

NPCC Antitrust Compliance Guidelines
The NPCC Antitrust Compliance Guidelines were read by Ruida Shu.

Agenda Items:

1.0 Meeting Agenda

2.0 RSC Meeting Minutes (Approval Item)

Approval of the February 22, 2023, RSC meeting minutes – No revision is necessary to the draft RSC meeting minutes that were provided in the agenda package.
Mike Jones moved the motion for approval
Chantal Mazza seconded the motion.
The February 22, 2023, RSC meeting minutes were approved.

3.0 Items Requiring RSC Discussion/Endorsement

3.1 FERC Internal Network Security Monitoring (INSM) Activities
Mike Keane from FERC discussed FERC Internal Netwrk Security Monitoring activities with the RSC.

3.2 RSC 2023 Corporate Goals
Gerry Dunbar reviewed the NPCC RSC 2023 Corporate Goals.

3.3 FERC Order on EOP-011-3 and EOP-012-1

3.4 Standard Processes Manual Update
Ruida Shu reviewed and discussed the Standard Processes Manual changes with the RSC members.

3.5 2023 New England Winter Gas-Electric Forum

4.0 NERC Reliability Standards

http://www.nerc.com/pa/Stand/Pages/Standards-Under-Development.aspx

4.1 Currently Posted Projects

Project	Comment Period End Date	Ballot Period End Date
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Project 2020-06 Verifications of Models and Data for Generators Chris Larson or Latrice Harkness @	1/18/22 (F)	1/18/22 (F)
Project 2021-01 Modifications to MOD-025 and PRC-019 Chris Larson or Latrice Harkness @	11/17/22 (F)	11/17/22 (I)
Project 2021-02 Modifications to VAR-002 Laura Anderson or Latrice Harkness @	1/13/23 (F)	1/13/23 (I)
Project 2021-03 CIP-002 Transmission Owner Control Centers Jordan Mallory or Latrice Harkness @	12/21/22 (F)	
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Project 2021-08 Modifications to FAC-008 Ben Wu or Ruida Shu @ 1:00 PM	1/27/22 (F)	
Project 2022-01 Reporting ACE Definition and Associated Terms Josh Blume @ 12:45 PM	3/16/23 (F)	3/16/23 (I)

Comments: (I) – Informal; (F) – Formal; (N) – Nomination Period
Ballots: (I) – Initial; (A) – Additional; (F) – Final

Project 2020-06 Verifications of Models and Data for Generators:
Additional comment period concluded January 18. Additional ballot ~28%. Industry commenters noted general improvement. High-level feedback included general disagreement with the need to submit verified EMT models (Requirement R6), disagreement with adding protection settings to Requirement R2/R3 for synchronous generation, and implementation plan being too short considering lack of industry expertise and highly technical nature of EMT models.

Project 2021-01 Modifications to MOD-025 and PRC-019:
Initial comment period concluded November 17. Ballot can be found on the SBS website; PRC-019 at ~40% and MOD-025 ~30%. The SDT continues to address industry comment and make revisions to the standards. Approximate date for additional posting is late March.

Project 2021-02 Modifications to VAR-002-4.1:
The initial comment period and ballots concluded at 8:00 p.m. Eastern on Friday, January 13. The results of the ballot can be found on the SBS website under ballot results. The SDT is reviewing comments received from industry and have scheduled three public SDT meetings: February 24, 2023, March 7, 2023, and March 10, 2023.

The SDT will make revisions to the Draft Version I VAR-002-5 based on comments received and will move to an additional 45-day comment period with 10-day ballot following the SDT meetings.

Project 2021-03 CIP-002 Transmission Owner Control Centers:
The SDT posted the final TOCC Field Test Report in January 2023. The SDT believes that there are entities for which the constraints associated with medium impact rating categorization are not commensurate with the risk posed to the BES should their Control Center be compromised. Based on the results of the Field Test, it may be appropriate to incorporate additional inclusion characteristics into the Criterion 2.12 and the previously proposed aggregate weighted value. Public meetings will be scheduled for February to start modifications of CIP-002 criterion 2.12 and modifications to the Control Center definition and potential defining data center.
All meetings going forward with 2021-03 project are public meetings, which started on January 13, 2023. The teams focus is review the Control Center definition (explained below) at this time before moving into modifications of criterion 2.12 of CIP-002.
Control Center info: During the recruitment of TO entities to participate in the Field Test and during the review of Field Test responses, the SDT found that many TOs have struggled to interpret the Control Center definition. This has surfaced in the following three manners: · Lack of a common understanding of the term ‘control’ versus ‘authority’. · Lack of a common understanding of the term ‘perform the functional

obligations of the TOP'. · Lack of a common understanding of the term 'associated data centers'

Project 2023-01 Project 2023-01 EOP-004 IBR Event Reporting:
A 30-day formal comment period for the EOP-004 IBR Event Reporting Standard Authorization Request (SAR) is open through 8 p.m. Eastern, Wednesday, March 8, 2023. Additionally, nominations are being sought for SAR drafting team members through 8 p.m. Eastern, Wednesday, March 8, 2023.

Project 2020-04 Modifications to CIP-012:
The team is in the process of reviewing comments from the last balloting period. We are adjusting the draft Standard language as we respond to comments. After adjusting the draft Standard language, we will make conforming changes to Technical Rationale and Implementation guidance. We also had some comments directly speaking to the TR and IG, so those comments will be addressed as well.

Project 2021-08 Modifications to FAC-008:
The SAR DT met thirteen times (including the Project kickoff meeting) from May 10, 2022, through August 16, 2022, to review and revise the SAR. The team discussed and considered industry comments during this process. SC approved the redlined SARs on September 21, 2022. The SDT started to work on the Standard on October 17, 2022. They have been meeting biweekly since then. The SDT will have an in-person meeting on March 7 & 8, 2023 in NERC office. The initial posting for comments and ballot will probably take place in late May, 2023.

4.2 Ballot History (Since last RSC Meeting)
Ruida Shu reviewed the ballot history document in the meeting.

4.3 Comment Form History (Since last RSC Meeting)
Ruida Shu reviewed the comment form history document in the meeting.

5.0 NPCC Non-Standards
https://www.npcc.org/Standards/SitePages/NonStandardsList.aspx

5.1 Items for Discussion

5.1.1 Directory#1 Design and Operation of the BPS --- Jt. Planning/Ops Review

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(Since last RSC Meeting)

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9.5 FERC and NERC Encourage NAESB to Convene Gas-Electric Forum
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9.6 2022 State of Reliability Report
Report (nerc.com)

9.7 NERC 2022 Annual Report
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August 9-10th – Location TBD and WebEx
October 11-12th – HQ Tentative and WebEx
December 7th - General Meeting and WebEx

The RSC meeting is adjourned at 2:46 PM.

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Information in a Regional Standard Authorization Request (RSAR)

The tables below identify information to be submitted in a Regional Standard Authorization Request to the NPCC Regional Standards Process Manager, NPCCstandard@npcc.org . The NPCC Regional Standards Process Manager shall be responsible for implementing and maintaining this form as needed to support the information requirements of the standards process.

Regional Standard Authorization Request Form

Title of Proposed Standard:	PRC-006-NPCC-2 Automatic Underfrequency Load Shedding
Request Date:	March 7, 2023

RSAR Requester Information

Name: **NPCC Task Force on System Protection**		**RSAR Type (Check box for one of these selections.)**	
Company:		☐	New Standard
Telephone:	860-665-2448	☒	Revision to Existing Standard
Fax:		☐	Withdrawal of Existing Standard
Email:	john.babu@eversource.com	☐	Urgent Action

Purpose (Describe the purpose of the proposed standard – what the standard will achieve in support of reliability.**)**

The goal of the proposed project is to clarify the footnote in Attachment C which should re-instate or establish tolerances for both the 300ms and 10s load shedding stages.

Industry Need (Provide a detailed statement justifying the need for the proposed standard, along with any supporting documentation**.)**

The purpose of NERC Regional Standard PRC-006-NPCC-2 is to establish more stringent and specific NPCC Underfrequency Load Shedding (UFLS) program requirements than the NERC continent-wide PRC-006 standard. The program is designed such that declining frequency is arrested and recovered in accordance with established NPCC performance requirements.

Requirement R3 of the standard requires each Distribution Provider (DP) or Transmission Owner (TO) in the Eastern Interconnection portion of NPCC to implement an automatic UFLS program according to Tables in Attachment C of the standard. These tables specify load shedding amounts, frequency thresholds and nominal operating times.

Requirement R3 is repeated below for reference:

R3. Each Distribution Provider and Transmission Owner in the Eastern Interconnection portion of NPCC shall implement an automatic UFLS program, reflecting normal operating conditions, excluding outages. The automatic UFLS program shall be implemented on an island basis for each identified island per the NERC continent-wide PRC-006 Standard on UFLS as follows: *[Violation Risk Factor: High] [Time Horizon: Long Term Planning]*

- The UFLS program shall be implemented by each Distribution Provider and Transmission Owner according to the frequency thresholds, nominal operating times, and load shedding amounts specified in Attachment C, Tables 1-3; or
- The UFLS program shall be implemented collectively by multiple Distribution Providers or Transmission Owners, as long as they reside in the same UFLS island identified by the Planning Coordinator per Requirement R2. These multiple Distribution Providers or Transmission Owners, via mutual agreement, shall act as a single entity to provide an aggregated automatic UFLS program that sheds their coincident peak aggregated net Load according to the frequency thresholds, total nominal operating time, and load shedding amounts specified in Attachment C, Tables 1-3.

The tables included in the standard in Attachment C were previously used in NPCC Regional Criteria Document Directory 12 (D12) – Regional Reliability Reference Directory#12 Underfrequency Load Shedding Program Requirements. The criteria in the tables in D12 were established by a special studies group within NPCC charged with establishing the basic criteria for the design of the UFLS programs to ensure declining frequency is arrested and recovered in accordance with established NPCC performance requirements to prevent system collapse due to a load-generation imbalance. While the tables in D12 and PRC-006-NPCC-2 Attachment C are identical, there is a difference in footnote 1 with respect to the total nominal operating times of the various load shedding stages. D12 specified a tolerance of the total operating time of each stage (for UFLS stages operating in 300ms) of +/-50 ms, while no timing tolerance is provided in the equivalent footnote in PRC-006-NPCC-2. This omission leads DPs or TOs to assume that the UFLS stage must operate exactly at the specified time. Since the operation of an interrupting

device for a UFLS program contains various vintages of relays and interrupting devices (ie. Distribution breakers or reclosers), it is not realistic to specify an exact operate time without providing for tolerances on that nominal operate time. Every entity within NPCC with an established UFLS program has already set hundreds of relays in accordance with D12 and forcing a review of every established installation which was previously compliant under D12 provides no reliability benefit since the UFLS program itself has not changed under PRC-006-NPCC-2.
Brief Description (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.**)** The scope should include the modification of the footnote in Attachment C to allow for tolerances to the total nominal operating time of each UFLS stage in accordance with the original load shedding program. There are thousands of UFLS schemes in service within NPCC. Without any stated tolerances for overall UFLS protection operate times, entities will be forced to go back to revisit each installation in an attempt to ensure the total operate time of the scheme equals exactly the Total Nominal Operate Time. This task provides no reliability benefit as the UFLS program requirements were already defined.

Reliability Functions

The Standard will Apply to the Following Functions (Check all applicable boxes.)		
☐	Reliability Coordinator	The entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the Wide Area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. The Reliability Coordinator has the purview that is broad enough to enable the calculation of Interconnection Reliability Operating Limits, which may be based on the operating parameters of transmission systems beyond any Transmission Operator's vision.
☐	Balancing Authority	The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.
☐	Interchange Authority	Authorizes valid and balanced Interchange Schedules.
☐	Planning Authority	The responsible entity that coordinates and integrates transmission facility and service plans, resource plans, and protection systems.
☐	Transmission Service Provider	The entity that administers the transmission tariff and provides Transmission Service to Transmission Customers under applicable transmission service agreements.

☒	Transmission Owner	The entity that owns and maintains transmission facilities.
☐	Transmission Operator	The entity responsible for the reliability of its "local" transmission system, and that operates or directs the operations of the transmission facilities.
☐	Transmission Planner	The entity that develops a long-term (generally one year and beyond) plan for the reliability (adequacy) of the interconnected bulk electric transmission systems within its portion of the Planning Authority Area.
☐	Resource Planner	The entity that develops a long-term (generally one year and beyond) plan for the resource adequacy of specific loads (customer demand and energy requirements) within a Planning Authority Area.
☐	Generator Operator	The entity that operates generating unit(s) and performs the functions of supplying energy and Interconnected Operations Services.
☐	Generator Owner	Entity that owns and maintains generating units.
☐	Purchasing-Selling Entity	The entity that purchases or sells, and takes title to, energy, capacity, and Interconnected Operations Services. Purchasing-Selling Entities may be affiliated or unaffiliated merchants and may or may not own generating facilities.
☒	Distribution Provider	Provides and operates the "wires" between the transmission system and the customer.
☐	Load-Serving Entity	Secures energy and transmission service (and related Interconnected Operations Services) to serve the electrical demand and energy requirements of its end-use customers.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check all boxes that apply.)*	
☒	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☒	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.
☐	5. Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.

☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
☐	7. The security of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
Recognizing that reliability is an Common Attribute of a robust North American economy:	
1. A reliability standard shall not give any market participant an unfair competitive advantage.Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Detailed Description (Provide enough detail so that an independent entity familiar with the industry could draft a standard based on this description.)

Requirement R3 of the standard requires each Distribution Provider (DP) or Transmission Owner (TO) in the Eastern Interconnection portion of NPCC to implement an automatic UFLS program according to Tables in Attachment C of the standard. These tables in Attachment C specify load shedding amounts, frequency thresholds and nominal operating times for all TOs or DPs within the Eastern Interconnection of NPCC, regardless of entity size. A typical UFLS table is included below for reference:

UFLS Table 1: Eastern Interconnection

Distribution Providers and Transmission Owners with 100 MW[2] or more of peak net Load shall implement a UFLS program with the following attributes:

UFLS Stage	Frequency Threshold (Hz)	Minimum Relay Time Delay (s)	Total Nominal Operating Time (s)[1]	Load Shed at Stage as % of TO or DP Load	Cumulative Load Shed as % of TO or DP Load
1	59.5	0.10	0.30	6.5 – 7.5	6.5 – 7.5
2	59.3	0.10	0.30	6.5 – 7.5	13.5 – 14.5
3	59.1	0.10	0.30	6.5 – 7.5	20.5 – 21.5
4	58.9	0.10	0.30	6.5 – 7.5	27.5 – 28.5
5	59.5	0.10	10.0	2 - 3	29.5- 31.5

The total nominal operating time(s) do have Footnote 1 which reads as follows:

1. The total nominal operating time includes the underfrequency relay operating time plus any interposing auxiliary relay operating times, communication times, and the rated breaker interrupting time. The underfrequency relay operating time is measured from the time when frequency passes through the frequency threshold setpoint, using a test rate of frequency decay of 0.2 Hz per second. If the relay operating time is dependent on the rate of frequency decay, the underfrequency relay operating time and any subsequent testing of the UFLS relays shall utilize a test rate of linear frequency decay of 0.2 Hz per second.

This footnote provides a definition of total nominal operating time as well as parameters needed to both specify settings for, and to test the relay. This information was previously found in D12 (though not in a footnote) and is necessary to adequately address the setting and testing parameters.

The specification of Total Nominal Operating Time(s) without any margin given is problematic. It is unrealistic to specify operating times for a complete protection system operation as an absolute number without any margins. Doing so places an unnecessary burden on all entities that own UFLS schemes since it is unclear what deviation is allowed for every single UFLS protection system. The studies conducted by SS-38, which is a UFLS subgroup under the NPCC Task Force on System Studies, originally provided margins for the 300ms stages of +/- 50ms and this was outlined in the now retired D12 document as shown in the below footnote, which

accompanied each table:

	Threshold Setting	Block Size	Cumulative Load Shed as % of TO or DP Load	Total Operating Time [1]
Stage 1	59.5 Hz	6.5-7.5 percent	6.5-7.5	300 ms
Stage 2	59.3 Hz	6.5-7.5 percent	13.5-14.5	300 ms
Stage 3	59.1 Hz	6.5-7.5 percent	20.5-21.5	300 ms
Stage 4	58.9 Hz	6.5- 7.5 percent	27.5-28.5	300 ms
Stage 5 (anti-stall)	59.5 Hz	2-3 percent	29.5-31.5	10 s

Notes:

(1) Total operating time is the load-weighted average for all **load** within a Balancing Authority area, with maximum deviation for any load limited to ±50 ms.

It is worth noting that all SS-38 UFLS assessments, including the latest in 2021, reference the tolerance on the Total Operating Time in the 300ms stages of +/-50ms which is indicative of the fact that the UFLS program within NPCC is tested with these parameters.

The intent of this was to provide entities some leeway in total overall protection operating time which would ensure the operation of the UFLS program will be effective in arresting a declining frequency and recover the system before a collapse. Since D12 had been effective in various revisions since 2009, all entities within NPCC had set and tested their UFLS relays according to these Total Operate Time parameters.

The original +/- 50ms tolerance does not provide sufficient leeway for the nominal 10s operating time due to the variations between the applicable frequencies for performing anti-stall function and the frequency ramp rate prescribed in the same footnote. The 10s block time tolerance should be widened, or the circumstances considered for the +/-50ms tolerance must be more thoroughly defined.

The drafting team must reconsider adding the +/- 50ms tolerance back into Footnote 1 for the UFLS blocks that operate in 300ms and in addition, consider a reasonable tolerance for the 10s anti-stall stage.

Related Standards

Standard No.	Explanation

Related SARs or RSARs

SAR ID	Explanation

NPCC 2023 Corporate Reliability Goals

Board Accepted February 8, 2023

NPCC is committed to the vision of a highly reliable and secure North American bulk power system (BPS). NPCC's specific role in support of the overall ERO Enterprise mission is to assure the effective and efficient reduction of risks to the reliability, resilience, and security of the international BPS within Northeastern North America. NPCC works collaboratively with NERC and the other Regional Entities to collectively attain the reliability objectives identified in the 2023 ERO Areas of Focus and Work Plan Priorities which focuses on identifying, evaluating, and addressing new and emerging issues affecting BPS reliability in order to prioritize and develop risk-based mitigation.

The NPCC 2023 Corporate Goals are purposed to support one or more Strategic Focus Areas within the NPCC 2023 - 2026 Strategic Plan which include:

- Enhancing System Resilience and Assuring Energy Sufficiency
- Reliably Integrating the Resources brought forward by Societal De-carbonization Objectives including Distributed Energy Resources (DER) and Variable Energy Resources (VER)
- Addressing Cyber and Physical Threats

The NPCC 2023 Corporate Goals also support the objectives outlined in the NPCC Board and FERC approved NPCC 2023 Business Plan and Budget.

Each Goal has a Threshold and Target performance level aspect which is either Qualitative or Quantitative; except Goal IA-3 which management is proposing a Stretch aspect. Throughout the year, performance level statuses are presented to acquire objective stakeholder input, share lessons learned, and/or to provide transparency.

Goal	*Strategic Focus Areas Objectives*	*Objective Stakeholder Input Provider*
I - (50%)	**Enhancing System Resilience and Assuring Energy Sufficiency** *NERC Reliability Standards and NPCC Directories are clear, timely, effective in mitigating risks to reliability, and consider cost-effectiveness/impact.* *The CMEP program promotes a culture of reliability excellence through risk-informed compliance monitoring, mitigation, enforcement, and registration.* *The NPCC Region has sufficient dispatchable generation and/or operational plans that support reliable operations as renewable resources are added to the energy mix.*	***Reliability Coordinating and Compliance Committees***
II – (25%)	**Reliably Integrating the Resources Brought Forward by De-carbonization Objectives, Including Distributed Energy Resources (DER) and Variable Energy Resources (VER)** *Prevention and mitigation of bulk power system reliability risks due to the increase in DER/VER and the increased connected load that will support meeting societal decarbonization goals.*	***Reliability Coordinating and Regional Standards Committees***
III - (25%)	**Addressing Cyber and Physical Security Threats** *Prevention and mitigation of cyber and physical security risks through active stakeholder engagement and information sharing of current threats and vulnerabilities, security workshops, and development of good industry practice guides.*	***Reliability Coordinating and Compliance Committees***

I.	**Enhancing System Resilience and Assuring Energy Sufficiency (Weighting: 50% of Total)**		
I-A	Enhancing System Resilience	**Threshold**	**Target**
IA-1. CORC (5%)	To support excellence in execution and quality of work, CMEP Staff aims to remain in compliance with all aspects of NERC Rules of Procedure (ROP).	No more than 3 instances of noncompliance with CMEP ROP obligations in 2023.	No more than 2 instances of noncompliance with CMEP ROP obligations in 2023. Stretch: No more than 0 instance of noncompliance with CMEP ROP obligations in 2023.
IA-2. CORC (2.5%)	To enhance the efficiency of processing commonly violated Standards and to resolve aging inventory, NPCC will develop two additional noncompliance processing approach tools addressing the most commonly violated Standards in NPCC and apply the developed tools to pending noncompliance. The tools will provide specific risk criteria for identifying the extent of the issue and assessing the risk of the noncompliance.	Develop noncompliance processing approach tools for CIP-005 (Electronic Security Perimeters) and CIP-011(Information Protection) - by 3/23.	Apply 10 noncompliance processing approach tools to 150 noncompliance. Stretch: Process 175 noncompliances Complete by 12/23.
IA-3. CORC (2.5%)	NPCC will resolve aging noncompliance by focusing on processing 2019 and 2020 aging inventory.	Resolve 50% open 2019 noncompliance - by 9/23.	Resolve 90% of all open 2020 noncompliance.

			Resolve existing 2020 noncompliance initially identified as serious. Complete by 12/23. Stretch: Process all 2019 & 2020 noncompliance
IA-4. CORC (5%)	Continue to use the NERC CMEP Practice Guide on Cold Weather Preparedness to engage a subset of volunteering NPCC Generator Owner/Generator Operators.	Present to CC for input by 3/23 and status at Spring 2023 Compliance Webinar. Perform on-site winterization walk-downs for 5 volunteering GO/GOP - by 9/23.	Perform on-site winterization walk-downs for 4 additional volunteering GO/GOP - by 11/23. Present status at Fall 2023 Compliance Conference/Webinar. Present status and results to CC – by 12/23. **<u>Stretch Bonus</u>** Perform 3 additional on-site winterization walk-down (8 total) for volunteering GO/GOP - by 12/23.

IA-5. CORC (5%)	Enhance Registration onboarding for new registrants and transition Certification activity away from the audit team.	Develop NPCC enhanced onboarding process and welcome package for new registrants. Complete NERC Certification Team Leader training for 1 ERA Staff. Present transition status to CC for input. All by 6/23.	Conduct 1 Certification Review with ERA transitional team for an Appendix 5A triggering change. Complete NERC Certification Team Leader Training for 1 additional ERA Staff. Present transition status at Fall 2023 Conference and to CC for input. All by 12/23.
IA-6. SAIS (5%)	Continuous improvement of SAIS program area.	Review and evaluate two (2) other Regional Entities' Situation Awareness (SA) capabilities (tools, processes, reporting, response plans, etc.) to enhance NPCC's SA team effectiveness in maintaining near real-time situation awareness of conditions on the BPS. Provide RCC quarterly status reports	Evaluate 3 Regional Entities Situational Awareness (SA) capabilities. Based on the review and evaluation, identify recommendations to improve NPCC's real-time situation awareness of conditions on the BPS. - by 12/23 Stretch: Evaluate 4 Regional Entities

			Situational Awareness (SA) capabilities.
IA-7. SAIS (5%)	Enhance System Resilience.	Develop a Cold Weather Preparedness Workshop for NPCC members to enhance BPS resilience for severe winter weather events, including consideration of best practices, current industry efforts, emerging risks and lessons learned from historical events. Develop scope for the Cold Weather Preparedness Workshop for TFCO review – by 5/23.	Conduct the Cold Weather Preparedness Workshop – by 10/23. Present a summary report to the RCC – by 12/23. Stretch: Host one (1) industry present the Lessons Learned Conference no later than November 2023.
I-B	Assuring Energy Sufficiency	**Threshold**	**Target**
IB-1. RAPA (10%)	Provide recommendation(s) for energy sufficiency assessments within the NPCC.	Continue participation in the EPRI Resource Adequacy for a Decarbonized Future Project, the US DOE Atlantic Offshore Wind Study and the related NERC and industry efforts through 2023.	Propose incorporation of energy sufficiency recommendations in future NPCC and NERC reliability assessments. Present proposal to the RCC - by 9/23.

		Present RCC status reports quarterly.	Stretch: Implement the proposed recommendations from the NPCC reliability assessments in 2023.
IB-1. SAIS (10%)	Assess gas-electric interdependencies.	Conduct two roundtable discussions with gas and electric entities within the NPCC region to share information regarding critical natural gas-electric load interdependencies. – by 9/23.	Identify opportunities that mitigate the risks of critical natural gas-electric load interdependencies within the NPCC region. Present two RCC status reports for input - by 12/23.

II.	Reliably Integrating the Resources brought forward by Societal De-Carbonization Objectives, including Distributed Energy Resources (DER) and Variable Energy Resources (VER). **(Weighting: 25% of Total)**	Threshold	Target
II-1. RAPA (5%)	Assess current inverter-based resources (IBR) Electromagnetic Transient (EMT) modeling practices to improve reliable integration of IBRs within NPCC.	Develop a survey to determine the extent of NPCC IBR EMT modeling, software, and studies performed. Complete the survey by 6/23.	Propose recommendations for the use and coordination of IBR EMT modeling and practices within NPCC. Present proposed recommendations to the RCC by 10/23.
II-2. STD (10%)	Enhance the reliable integration of increasing amounts of DERs, VERs (including offshore wind (OSW)) by continuing outreach and information sharing opportunities with stakeholders emphasizing the role of future transmission, electric vehicle (EV) and building electrification integration. Review and revise, as required, the applicable NPCC Directories to address reliability contributions and challenges of changing technologies.	Develop proposed recommendations for incorporating provisions of IEEE-2800 (Standard for Interconnection and Interoperability of IBRs) into the applicable NPCC Criteria. Present to RCC and RSC for input – by 10/23.	Conduct three (3) DER/VER Forums to identify the need for regional transmission coordination as a result of building electrification, EVs and OSW integration – by 12/23. Stretch: Conduct an additional DER/VER Forum.

II-3. STD (10%)	Enhance outreach to states, provinces, planning authorities and other stakeholders to establish a higher degree of coordination and transparency during the energy transition brought forward by societal de-carbonization objectives.	Conduct three (3) briefings with state and provincial regulators on NERC and NPCC reliability assessments to promote awareness of effective regional transmission planning in the face of the changing resource mix, the impact of emerging technologies, and operability of the BPS with respect to the integration of DER/VER (OSW) - by 12/23.	Conduct a fourth briefing with state and provincial regulators to identify specific northeast emerging reliability risks (such as associated with cyber and physical security). Provide quarterly status reports to the RCC and RSC for input - by 12/23.

III.	Address Cyber and Physical Security Threats (Weighting: 25% of Total)	Threshold	Target
III-1. SAIS (10%)	Expand regional support for and interaction with the E-ISAC and Canadian partners to facilitate information and best practices sharing within Northeastern North America. Enhance outreach and information exchange through interactions with agencies (e.g., NERC E- ISAC, DHS, DOE, Natural Resources Canada, and Federal, State and Local Law Enforcement) and to foster a more efficient working model for information and intelligence sharing.	Conduct two physical and cyber security webinars/workshops to highlight and address cyber and physical security risks topics (i.e., Insider Threat, Drones, Design Basis Threat, Ransomware, etc.) - by 7/23.	Conduct four physical and cyber security webinars/workshops to highlight and address cyber and physical security risks topics (i.e., Insider Threat, Drones, Design Basis Threat, Ransomware, etc.) - by 12/23. Stretch: perform an additional physical and cyber security webinars/workshops.
III-2. CORC (15%)			
	Stakeholders (customer) Feedback	Develop a method to receive feedback on NPCC and collaborate with stakeholders to identify data to collect by 9/23	Identify the tool by 12/23
	Mitigate NERC CMEP Audit Findings	Mitigate 80% of outstanding actionable items from the NERC audit findings. By 9/23	Mitigate 100% of outstanding actionable items from the NERC audit findings. By 12/23