NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Agenda
Board of Trustees Meeting

December 12, 2023 | 11:00 a.m. – 12:00 p.m. Eastern
Hybrid Meeting

Board of Trustees and NERC Staff ONLY In-Person
NERC DC Office
1401 H Street NW
Washington, D.C. 20005

Attendees – Fully Virtual

ATTENDEE WebEx Link: Join Meeting
Attendee Password: Attendee122023 (72635478 from phones)
Join by Phone: +1-415-655-0002 US Toll | Access code: 231 454 22664

Introduction and Chair's Remarks

NERC Antitrust Compliance Guidelines

Consent Agenda* – Approve

1. **Minutes**
   a. October 23, 2023 Meeting
   b. August 17, 2023 Meeting
2. **Standing Committee Membership**
   a. Compliance and Certification Committee Membership
   b. Personnel Certification Governance Committee Membership
   c. Standards Committee Membership

Regular Agenda

3. **Working Capital and Reserves Policy* – Approve**
4. **Standards**
   a. WECC Regional Reliability Standard VAR-501-WECC-4* – **Adopt**
   b. Project 2020-04 Modifications to CIP-012* – **Adopt**
   c. 2024-2026 Reliability Standards Development Plan* – **Approve**
5. **2024 NERC Work Plan Priorities* – Approve**
6. **2023-2024 Winter Reliability Assessment Overview* – Review**
7. **2023 Long-Term Reliability Assessment Overview* – Review**
8. **NERC Alert Level 3 - Essential Actions to Industry * – Update**
9. **Other Matters and Adjournment**

*Background materials included.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

DRAFT Minutes
Board of Trustees

October 23, 2023 10:30 a.m.–11:00 a.m. Eastern

Virtual Meeting

Call to Order

Mr. Kenneth W. DeFontes, Jr., Chair, called to order the duly noticed open meeting of the Board of Trustees (the Board) of the North American Electric Reliability Corporation (NERC or the Corporation) on October 23, 2023, at 10:30 a.m. Eastern, and a quorum was declared present. The agenda is attached as **Exhibit A**.

Present at the meeting were:

Board Members
Kenneth W. DeFontes, Jr., Chair
Jane Allen
Robert G. Clarke
Larry Irving
Suzanne Keenan
Susan Kelly
Robin E. Manning
Jim Piro
James B. Robb, NERC President and Chief Executive Officer
Kristine Schmidt

NERC Staff
Tina Buzzard, Assistant Corporate Secretary
Manny Cancel, Senior Vice President and Chief Executiv e Officer of the E-ISAC
Kelly Hanson, Senior Vice President and Chief Administrative Officer
Soo Jin Kim, Vice President, Engineering and Standards
Sônia Rocha, Senior Vice President, General Counsel, and Corporate Secretary
Lauren Perotti, Assistant General Counsel
Janet Sena, Senior Vice President, External Affairs

NERC Antitrust Compliance Guidelines

Ms. Buzzard noted the public nature of the meeting and directed the participants' attention to the NERC Antitrust Compliance Guidelines included in the advance meeting materials. She stated that any additional questions regarding these guidelines should be directed to Ms. Rocha.

Introduction and Chair's Remarks

Mr. DeFontes welcomed all of the attendees to the meeting and noted the purpose of the meeting is to adopt the second phase proposed cold weather Reliability Standards developed in response to the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Inquiry into the causes of the February 2021 cold weather event affecting Texas and the south central United States ("Joint Inquiry Report").

Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

Ms. Kim introduced the proposed Reliability Standards, noting that they were developed to address the second phase recommendations for standards development from the Joint Inquiry Report in accordance with the timeline directed by the Board at its November 2021 meeting.

Ms. Kim highlighted the reliability benefits provided by the proposed standards, including: (1) enhanced requirements for Transmission Operator and Balancing Authority Operating Plan(s) to mitigate emergencies that accounts for critical natural gas infrastructure loads that are essential for Bulk Electric System reliability; and (2) a new requirement for Balancing Authorities to implement extreme cold weather Operating Processes. She explained that the five-day look ahead requirement for these Operating Processes will aid entities in determining whether they have adequate generation resources available, with consideration to factors are known to impact generator availability. Ms. Kim noted that work is continuing to address the directives from FERC's February 2023 order approving the phase 1 standards.

Mr. DeFontes thanked the standard drafting team and NERC's stakeholders for their work on this important project. Ms. Kelly echoed her appreciation and support. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

Proposed Reliability Standard EOP-011-4

RESOLVED, that the Board hereby adopts the proposed Reliability Standard EOP-011-4, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby approves the Violation Risk Factors and Violation Severity Levels for the proposed Reliability Standard, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby approves the proposed retirement of Reliability Standard EOP-011-3, as presented to the Board at this meeting.

Proposed Reliability Standard TOP-002-5

RESOLVED, that the Board hereby adopts the proposed Reliability Standard TOP-002-5, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby approves the Violation Risk Factors and Violation Severity Levels for the proposed Reliability Standard, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby approves the proposed retirement of Reliability Standard TOP-002-4, as presented to the Board at this meeting.

Implementation Plan

FURTHER RESOLVED, that the Board hereby approves the associated implementation plan for the above-listed Reliability Standards, as presented to the Board at this meeting.

Authorization

FURTHER RESOLVED, that NERC management is hereby authorized to make the appropriate filings with ERO governmental authorities and take such further actions and make such further filings as are necessary and appropriate to effectuate the intent of the foregoing resolutions.

Mr. DeFontes remarked that the Board looks forward to considering the remaining cold weather Reliability Standard enhancements in early 2024.

Other Matters and Adjournment

There being no further business, and upon motion duly made and seconded, the open meeting was concluded, and the Board adjourned into executive session to discuss a confidential matter. At the conclusion of the executive session, the meeting was adjourned.

Submitted by,

Sônia Rocha
Corporate Secretary

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Draft Minutes
Board of Trustees

August 17, 2023 | 9:00 a.m.–12:00 p.m. Eastern
In-Person/Live Webcast

Westin Ottawa Hotel
11 Colonel By Dr.
Ottawa, ON K1N 9H4, Canada

Call to Order

Mr. Kenneth W. DeFontes, Jr., Chair, called to order the duly noticed open meeting of the Board of Trustees (the Board) of the North American Electric Reliability Corporation (NERC or the Corporation) on August 17, 2023, at 9:00 a.m. Eastern, and a quorum was declared present.

Present at the meeting were:

Board Members
Kenneth W. DeFontes, Jr., Chair
George S. Hawkins, Vice Chair
Jane Allen
Robert G. Clarke
Larry Irving
Suzanne Keenan
Susan Kelly
Robin E. Manning
Jim Piro
Kristine Schmidt
Colleen Sidford

NERC Staff
Tina Buzzard, Assistant Corporate Secretary
Manny Cancel, Senior Vice President and Chief Executive Officer of the E-ISAC
Erika Chanzes, Manager, Business Planning
Howard Gugel, Vice President, Compliance Assurance and Registration
Kelly Hanson, Senior Vice President and Chief Administrative Officer
Latrice Harkness, Director, Standards Development
Stan Hoptroff, Vice President, Business Technology
Nina Jenkins-Johnston, Assistant General Counsel
Soo Jin Kim, Vice President, Engineering and Standards
Mark G. Lauby, Senior Vice President and Chief Engineer
Kimberly Mielcarek, Vice President, Communications
John Moura, Director, Reliability Assessment and Performance Analysis
Sônia Rocha, Senior Vice President, General Counsel, and Corporate Secretary
Liz Saunders, Director, HR Centers of Excellence
Janet Sena, Senior Vice President, External Affairs

Andy Sharp, Vice President and Chief Financial Officer

NERC Antitrust Compliance Guidelines

Ms. Buzzard directed the participants' attention to the NERC Antitrust Compliance Guidelines included in the advance agenda package and indicated that all questions regarding antitrust compliance or related matters should be directed to Ms. Rocha.

Introduction and Chair's Remarks

Mr. DeFontes welcomed all of the attendees to the meeting. He also welcomed Mr. Sami Khoury, Head of the Canadian Centre for Cyber Security (CCCS), Mr. Harneet Panesar, Chief Operating Officer, Ontario Energy Board, Ms. Patricia Hoffman, Principal Deputy Assistant Secretary for the Office of Electricity, U.S. Department of Energy, and Mr. David Morton, Chair, CAMPUT. Mr. DeFontes noted that President and CEO Jim Robb was unable to attend the meeting due to unforeseen family obligations.

Consent Agenda

Upon motion duly made and seconded, the Board approved the consent agenda as follows:

Minutes

The draft minutes for the May 11, 2023 meeting were approved as presented to the Board at this meeting.

Committee Membership

Personnel Certification Governance Committee Membership

RESOLVED, that the Board hereby appoints the following individuals to the Personnel Certification Governance Committee, each for a term ending December 2025:

- Derek Scott, Manitoba Hydro; and
- Tyler Springer, AEP.

Regular Agenda

Remarks by Sami Khoury, Head of the Canadian Centre for Cyber Security (CCCS)

Mr. Cancel introduced Mr. Khoury, Head of the CCCS. Mr. Khoury remarked on the threat landscape and the opportunity to work together and progress to date. He noted the CCCS's collaboration with U.S. counterparts at the National Security Administration, Cybersecurity and Infrastructure Security Agency (CISA), and Department of Energy. Mr. Khoury noted several major areas of concern, including ransomware incidents and nation state activities. He remarked on the collaboration with CISA on cyber security performance goals.

Remarks by Harneet Panesar, Chief Operating Officer, Ontario Energy Board

Mr. Cancel introduced Mr. Panesar of the Ontario Energy Board (OEB). Mr. Panesar began his remarks by noting the importance of recognizing and honoring Canada's indigenous peoples. He remarked on how the OEB has worked with NERC on issues involving the energy transition, transparency, and accountability. Mr. Panesar noted the four main objectives for OEB: reconciliation with indigenous nations, resiliency regarding the distribution sector, innovation regarding cost effective solutions for energy consumers, and cyber security. He reported that OEB will be participating in GridEx this year.

Remarks by Patricia Hoffman, Principal Deputy Director, Grid Deployment Office, U.S. Department of Energy

Mr. DeFontes introduced Ms. Hoffman of DOE. Ms. Hoffman remarked on the DOE's focus on transmission issues, including the recent issuance of a Request for Information to guide potential improvements to the transmission

process and efforts to coordinate permitting among multiple federal agencies. She also highlighted continued coordination and collaboration on resilience issues, including on extreme weather issues, and efforts to understand resource availability. Ms. Hoffman noted that Office of Electricity is taking the lead on addressing the transformer shortage issue challenging industry.

Remarks by David Morton, Chair, CAMPUT

Mr. DeFontes introduced Mr. Morton, Chair, CAMPUT. Mr. Morton remarked on continued engagement between NERC and the Canadian regulators, noting that NERC's mission in increasingly more import due to extreme weather, bad actors and reliability on fossil fuels. He thanked the E-ISAC for inviting the Canadian regulators to the monthly threat meeting. He welcomed opportunities for further engagement between Canadian regulators and NERC's processes.

President's Report

Mr. Cancel provided the president's report on behalf of Mr. Robb. Mr. Cancel thanked the Canadian stakeholders for their support and engagement, and noted that NERC will continue to work closely with Canadian stakeholders. He also acknowledged the 20th anniversary of the August 2003 blackout that led to NERC becoming the North American Electric Reliability Organization. Mr. Cancel remarked that the cyber security and the physical threat landscapes remain challenging. He expressed appreciation for the support of the North American Energy Standards Board (NAESB) and the recommendations of the NAESB Gas Electric Harmonization Forum Report. Mr. Cancel also acknowledged the Member Representatives Committee (MRC) and their role in providing input to the Board.

Mr. Cancel then introduced Mr. Jason Blake, CEO of SERC, and co-chair of the ERO Executive Group. Mr. Blake remarked on the ERO Enterprise's deep connection with the Canadian community and efforts to strengthen partnerships with Canadian regulators. He remarked on four challenges being addressed across the ERO Enterprise: delivering value to stakeholders and to the mission, ensuring agility and efficiency across the ERO Enterprise, being data-driven in decision-making, and the commitment to security. He noted that this is his last time as co-chair of the ERO Executive Group, and that Jim Albright will serve as the next co-chair.

Report on the August 15 and August 17, 2023 Closed Meetings

Mr. DeFontes reported that on August 15, 2023 and August 17, 2023 (as is its custom), the Board met in closed session with NERC management to review NERC management activities. On August 15, the Board received updates on the CRISP program and the interregional transformer capability study directed by the U.S. Congress, and reviewed the structures of the Member Representatives Committee and registered ballot body. On August 17, the Board reviewed the Reliability Standards items proposed for action at this meeting, discussed the Board's resolutions for this meeting, and discussed feedback on the policy input and the MRC meeting. The Board adjourned into executive sessions with the General Counsel to discuss confidential matters. The Board also adjourned into executive session to discuss confidential matters.

Board Committee Reports

Corporate Governance and Human Resources

Ms. Keenan, Committee Chair, reported on recent Committee meetings and actions. At the August 15, 2023 closed meeting, the Committee approved an action to formalize how NERC manages its benefits plans, approved a revision to the NERC Savings and Investment Plan, and received information on how NERC is advancing efficiencies in the administration of its retirement plans. The Committee also met in executive session to receive updates on the

performance management cycle and executive compensation study, as well as to discuss the CEO mid-year assessment. The Committee then adjourned into executive session to discuss other confidential matters.

At the August 16, 2023 open meeting, the Committee approved and recommended for Board approval proposed amendments to the Compliance Committee mandate. After discussion, and upon motion duly made and seconded, the Board approved the following resolution:

> **WHEREAS,** Article III, Section 8 of the NERC Bylaws provide that the NERC Board of Trustees shall by resolution create and appoint all committees of the Board as the Board deems necessary to perform its responsibilities;
>
> **WHEREAS,** the Board has determined increased focus and oversight is needed in the area of standards development, in light of the current volume and complexity of standards-related projects and issues;
>
> **WHEREAS,** the Board has previously established the Compliance Committee to aid the Board in its oversight of the Compliance Monitoring and Enforcement Program and Organization Registration and Certification Program, to serve as an adjudicatory body for appeals, and provide other approvals that are required from time to time;
>
> **WHEREAS,** the Board has determined that the integrating standards oversight into the existing Compliance Committee responsibilities would enhance the Board's oversight of NERC's core regulatory processes along the entire continuum of activities, from standards development, to registration, through compliance and enforcement actions;
>
> **WHEREAS,** the Board has determined that the Compliance Committee should be renamed to the Regulatory Oversight Committee, to reflect this expanded scope of responsibilities to include standards;
>
> **WHEREAS,** the Corporate Governance and Human Resources Committee, at its August 17, 2023 meeting, approved the proposed mandate for the Regulatory Oversight Committee and recommended it for Board approval;
>
> **NOW, THEREFORE, BE IT RESOLVED**, that the Board hereby approves the mandate for the Regulatory Oversight Committee, as presented to the Board at this meeting, to replace the Compliance Committee mandate approved by the Board on February 2, 2018.

Compliance
Mr. Manning, Committee Chair, reported on recent Committee meetings. At the August 15, 2023 closed meeting, the Committee received an update on Compliance Monitoring and Enforcement in Canada, including the annual report on Canadian activities, reviewed NERC standards processes in preparation for the upcoming committee reorganization, and received information on NERC and Regional Entity Compliance Monitoring and Enforcement Program (CMEP) and Organization Registration and Certification Program (ORCP) audit remediation. The Committee also adjourned into executive session to discuss confidential matters. At the August 16, 2023 open meeting, the Committee approved and recommended for Corporate Governance and Human Resources Committee approval revisions to its mandate to include oversight of the standards process within its scope of activities. The Committee also received an update on inverter based resources, the CMEP and ORCP semi-annual report, and small group advisory sessions.

Finance and Audit (FAC)
Ms. Sidford, Committee Chair, reported on recent meetings of the Committee. At the July 12, 2023 closed meeting, the Committee reviewed the proposed 2024 NERC and Regional Entity 2024 business plans and budgets. At the

August 15, 2023 closed meeting, the Committee received updates on the 2024 NERC and Regional Entity business plan and budgets and the line of credit and capital financing program renewal. The Committee also received an update on internal audit activities and approved the 2024 internal audit budget and resource plan.

At the August 16, 2023 open meeting, the Committee received an update on line of credit renewals and reviewed the second quarter 2023 unaudited summary of results and recommended them for Board acceptance. Upon motion duly made and seconded, the Board approved the following resolution:

> **RESOLVED**, that the Board, upon recommendation of the Finance and Audit Committee, hereby accepts the Second Quarter 2023 NERC, Combined ERO Enterprise, and Regional Entity Unaudited Statement of Activities, as presented to the Board at this meeting.

The Committee also reviewed and recommended Board approval of the NERC, Regional Entity, and WIRAB Proposed 2024 Business Plans and Budgets and Associated Assessments. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

> **RESOLVED**, that the Board hereby approves the following, substantially in the form presented to the Board at this meeting:
>
> 1. The proposed 2024 NERC Business Plan and Budget;
> 2. The proposed 2024 Business Plans and Budgets of the Regional Entities and the Western Interconnection Regional Advisory Board; and
> 3. The proposed 2024 assessments to recover the costs of the approved 2024 budgets, subject to adjustments to reflect final Net Energy for Load numbers, together with such other adjustments as may be necessary.
>
> **FURTHER RESOLVED**, that NERC management is hereby authorized to make the appropriate filings with ERO governmental authorities and take such further actions and make such further filings as are necessary and appropriate to effectuate the intent of the foregoing resolution.

Enterprise-wide Risk
Mr. Piro, Committee Chair, reported on the Committee's closed meeting on August 15, 2023. At its meeting, the Committee received updates on Compliance and Certification Committee (CCC) activities, Regional Entity activities, internal audit activity, risk response planning, and corporate compliance and ethics. The Committee also reviewed Committee activities against its mandate. The Committee concluded in executive session to discuss confidential matters.

Technology and Security (TSC)
Ms. Allen, Committee Chair, reported on the August 16, 2023 open meeting of the Committee. At the meeting, the Committee received updates on ERO Enterprise business technology, including customer support and an update on the implementation of Align in Canada, and E-ISAC operations, including a brief on the threat landscape, the Member Executive Committee summary, and the E-ISAC customer experience.

Nominating
Mr. Clarke, Committee Chair, reported on the August 15, 2023 closed meeting of the Committee. At the meeting, the Committee reviewed the Board nomination and election process, including timelines, and reviewed trustee attributes

and expertise categories. He reported that all four trustees whose terms will conclude (Mr. Hawkins, Ms. Kelly, Mr. Irving, and Mr. Manning) will be recommended for re-nomination.

Report by Susan Kelly on Standards

Ms. Kelly, Standards Committee Liaison, reported on recent Standards Committee activity, including the May Standards Committee meeting and the July Standards Committee/Compliance and Certification Committee joint meeting, where the two committees engaged in a discussion regarding residual risks. She reported that there are at least 20 ongoing standard development projects, that NERC staff is working with stakeholder leadership to prioritize projects and coordinate projects that deal with the same set of standards, and that additional personnel is needed to support these projects. She remarked on the Board's appreciation for the work of the Standards Committee and how industry needs to continue to make completion of the cold weather Reliability Standards a high priority. Ms. Kelly also remarked on how the standards process can be streamlined and improved as challenges grow.

Report by Rob Manning on RSTC Quarterly Activities

Mr. Manning, Committee liaison, reported on recent Reliability and Security Technical Committee activities, including the hybrid sessions held in June. He reported that Rich Hydzik was recently elected as incoming committee chair, and Jon Stephens as vice chair.

Semi-Annual Reports to the Board

Personnel Certification Governance Committee

Mr. Darrell Moore, NERC, Director Situation Awareness, provided the Committee report on behalf of Committee leadership. He reported on recent activities of the Committee, referencing the materials included in the advance agenda package. He highlighted the August meeting in Vancouver and noted that PCGC will increase program fees beginning in January 2024 due to increases in administrative costs.

Compliance and Certification Committee

Mr. Scott Tomashefsky, Committee Chair, reported on recent activities of the Committee, referencing the materials included in the advance agenda package. He highlighted the Committee's approval of the 2022 Stakeholder Perception Report and two CCC procedures. Mr. Tomashefsky also reported on the joint meeting with the Standards Committee in July 2023, where the Committee discussed the level of support needed by the CCC to implement the Board's directives related to the standards process improvement effort and to enhance the value of the risk framework, and the Committee's third quarter meeting where it provided input on NERC's proposed registration criteria related to IBRs.

Reliability and Security Technical Committee

Mr. John Moura, NERC, Director, Reliability Assessment and Performance Analysis, provided the Committee report on behalf of Committee leadership. He reported on recent activities of the Committee, referencing the materials included in the advance agenda package. He highlighted RSTC activities related to reliability guidelines, white papers, reports, and standard authorization requests. Mr. Moura also reported that the Committee elected new leadership and established a review team to review the 2023 ERO Reliability Risk Priorities Report and updated the RSTC Strategic Plan and Work Plan Priorities. He also reviewed 2023 priorities.

Standards Committee

Mr. Todd Bennett, Committee Vice Chair, reported on recent activities of the Committee, referencing the materials included in the advance agenda package. He highlighted recent Committee activity to accept Standard Authorization Requests, authorize initial postings, and appoint drafting teams. Mr. Bennett also discussed the increased project activity due to the changing threat landscape.

North American Energy Standards Board
Mr. Michael Desselle, Chair of the NAESB Board of Directors, provided an update on NAESB activities in areas of mutual interest. He highlighted the July 2023 report of the NAESB Gas Electric Harmonization Forum.

North American Transmission Forum
Mr. Thomas Galloway, President and CEO, provided an update on NATF activities. He highlighted recent NATF-ERO leadership meetings, participation in the joint NERC and FERC Physical Security Technical Conference, work on inverter based resources, and other activities. He also remarked on potential collaboration regarding the interregional transfer capability study.

North American Generator Forum
Ms. Venona Greaff, Secretary, North American Generator Forum, provided an update on Forum activities, including upcoming meetings.

Standards Quarterly Report and Actions

Proposed Revisions to the NERC Rules of Procedure – Reliability Standards
Ms. Kim presented the proposed revisions to Section 300 and Appendix 3A to the Rules of Procedure, *Standard Processes Manual*. She highlighted that this revision effort began with the October 2022 recommendations of the Standards Process Stakeholder Engagement Group, and it benefited from significant stakeholder engagement and feedback. Ms. Kim noted that the proposed changes would help ensure that NERC has the ability to address urgent reliability issues with appropriate agility, while also maintaining reasonable notice and opportunity for public comment, due process, openness, and balance of interests.

Mr. DeFontes thanked everyone across the enterprise for their hard work on this effort. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

> **WHEREAS,** on October 10, 2022, the Standards Process Stakeholder Engagement Group ("SPSEG"), a group appointed by Chair DeFontes to recommend changes to NERC's standard development processes that would improve NERC's ability to address urgent reliability needs with appropriate agility, while also maintaining reasonable notice and opportunity for public comment, due process, openness, and balance of interests in standards development, submitted its unanimous recommendations for standards process changes to the Board;
>
> **WHEREAS,** the SPSEG's recommendations consisted of recommended changes to Section 300 of the NERC Rules of Procedure and Appendix 3A to the NERC Rules of Procedure, Standard Processes Manual, as well as recommendations for the standing committees to facilitate effective administration and coordination in the development of standards;
>
> **WHEREAS,** the Board determined that the recommended changes should be considered through the usual processes, and it took two actions at its November 2022 meeting to initiate those processes: first, by directing that the recommended changes to Section 300 of the Rules of Procedure be posted for public comment in accordance with Section 1400 of the NERC Rules of Procedure, Amendments to the NERC Rules of Procedure; and second, by requesting that the Standards Committee promptly submit the recommended changes to Appendix 3A to the NERC Rules of Procedure, Standard Processes Manual for comment and then ballot under Section 15.0 of the Standard Processes Manual, Process for Updating Standard Processes;
>
> **WHEREAS,** the changes to Section 300 of the Rules of Procedure and Appendix 3A, Standard Processes Manual were posted and further revised in response to stakeholder comments;

WHEREAS, the proposed revisions to Appendix 3A, Standard Processes Manual received the required ballot body approval;

WHEREAS, the Board finds that the proposed changes to Section 300 of the Rules of Procedure and Appendix 3A Standard Processes Manual would improve NERC's ability to address urgent reliability needs with appropriate agility, while also maintaining reasonable notice and opportunity for public comment, due process, openness, and balance of interests in standards development;

WHEREAS, the Board also finds that the proposed Section 322 of the Rules of Procedure would make clear NERC has the authority in its Rules to meet its fundamental responsibility under Section 215 of the Federal Power Act to develop, establish, and enforce Reliability Standards to ensure the reliability of the Bulk-Power System;

WHEREAS, the Board extends its sincere appreciation to NERC's stakeholders for their engagement in this important initiative;

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby approves the proposed revisions to Section 300 of the NERC Rules of Procedure and Appendix 3A, Standard Processes Manual, as presented to the Board at this meeting.

BE IT FURTHER RESOLVED, that NERC management is hereby authorized to make the appropriate filings with ERO governmental authorities and take such further actions and make such further filings as are necessary and appropriate to effectuate the intent of the foregoing resolution.

Project 2021-06 Modifications to IRO-010 and TOP-003

Ms. Harkness presented proposed Reliability Standards IRO-010-5 and TOP-003-6, explaining that the proposed standards would enhance the data specification approach of the two standards to reduce the administrative burden of excessive data retention, while ensuring that entities with operational responsibilities maintain the ability to request and receive needed information to support their activities. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board hereby adopts the proposed Reliability Standards TOP-003-6 and IRO-010-5, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby approves the Violation Risk Factors and Violation Severity Levels for the proposed Reliability Standards, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby approves the associated implementation plan for the proposed Reliability Standards, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby approves the proposed retirement of Reliability Standards TOP-003-5 and IRO-010-4, as presented to the Board at this meeting.

FURTHER RESOLVED, that NERC management is hereby authorized to make the appropriate filings with ERO governmental authorities and take such further actions and make such further filings as are necessary and appropriate to effectuate the intent of the foregoing resolutions.

Cold Weather Standards Status

Ms. Kim provided an update on the status of standards development to address the second phase recommendations for Reliability Standards improvements from the FERC and ERO Enterprise Joint Inquiry Report into the causes of the February 2021 cold weather event, as well to address the directives from the FERC order approving Reliability

Standard EOP-012-1 and EOP-011-3. She reported that the initial ballot of the second phase standards was not successful, and that the team will post a second draft in August. Ms. Kim also noted that the initial ballot for a revised EOP-012-2 was not successful, and the team is reviewing the comments to determine next steps. She noted that while the standard drafting team was not in a position to resolve concerns regarding the availability of cost recovery for needed investments in winterization, she was optimistic that a consensus approach could be achieved.

Other Matters and Reports

Input Letter and Member Representatives Committee Meeting

Ms. Flandermeyer expressed her appreciation to the Board for the opportunity to provide input.

ERO Reliability Risk Priorities Report

Mr. Slocum, Reliability Issues Steering Committee (RISC) Chair, presented the 2023 ERO Reliability Risk Priorities Report included in the advance agenda materials. This report is published every two years and is intended to inform regulators, policy makers and industry on existing and emerging risks as well as proposed and implemented mitigating strategies. Mr. Slocum highlighted five risk profiles and common themes, including energy policy, grid transformation, resilience to extreme events, security risks, and critical infrastructure interdependencies. He noted that the report recommends actionable mitigating activities that enable the ERO Enterprise and industry to use the risk profiles and the mitigating activities map for baseline and recurring evaluations.

The Board discussed the report and recommendations. After discussion, and upon motion duly made and seconded, the Board approved the following resolution:

> **RESOLVED**, that the Board hereby accepts the Reliability Issues Steering Committee 2023 ERO Reliability Risk Priorities Report, as presented to the Board at this meeting.

Semi-Annual Review of the Achievements of the NERC Work Plan Priorities

Ms. Chanzes provided the midyear update on the status of the 2023 work plan priorities. She noted that, since the 2023 work plan priorities were approved in November, FERC has issued a number of directives to NERC, and the U.S. Congress has mandated an interregional transfer study requiring additional resources and reprioritization of projects. Ms. Chanzes highlighted that while most of the 32 individual work plan priorities were complete or on track to be completed, two are at risk, and two will not be reached due to directed activities.

Other Matters and Adjournment

Mr. DeFontes thanked the participants for their engagement in the meetings. There being no further business, and upon motion duly made and seconded, the meeting was adjourned.

Submitted by,

Sônia Rocha
Corporate Secretary

Compliance and Certification Committee Membership

Action
Approve

Summary
The Compliance and Certification Committee (CCC) respectfully requests the NERC Board of Trustees (Board) approve the following two-year Committee Officer appointments and Membership appointments for a three-year term effective on January 1, 2024.

At the October 2023 CCC meeting, the CCC unanimously approved the following CCC members to serve as Committee Officers (Term January 1, 2024 – December 31, 2025):

- CCC Chair - Scott Tomashefsky, Northern California Power Authority, representing State/Municipal
- CCC Vice-Chair – Silvia Parada Mitchell, NextEra Energy Resources, LLC, Member At Large

In August 2023, the Nominating Subcommittee selected the following Nominees for Membership on the CCC (Term January 1, 2024 – December 31, 2026):

- Erin McClatchey, Avista Corporation, representing Investor-Owned Utility
- Scott Tomashefsky, Northern California Power Authority, representing State/Municipal
- Patricia Robertson, British Columbia Hydro, representing Federal/Provincial Utility/Federal Power Marketing Administration
- Ajay Garg, Hydro One, representing Federal/Provincial Utility/Federal Power Marketing Administration
- Mark E. Buchholz, Western Area Power Administration, representing Federal/Provincial Utility/Federal Power Marketing Administration
- Patti Metro, National Rural Electric Cooperative Association, representing Transmission Dependent Utility
- Jodirah (Jody) Green, ACES Power, representing Electricity Marketer
- Erin Cullum Marcussen, Southwest Power Pool, Inc., representing ISO/RTO
- Zachary Heidemann, Michigan Public Service Commission, representing U.S. State
- Ellen Watkins, Sunflower Electric Power Corporation, Member At large
- Tim Self, Southern Company, Member At Large
- Mahmood Safi, Vistra Corp., Member At Large
- Rob Robertson, Leeward Renewable Energy, Member At Large
- Mark Diggs, American Electric Power (AEP), Member At Large

- Derek Olmstead, Market Surveillance Administrator (Alberta), Canadian Provincial
- Claudia Astudillo, Canada Energy Regulator (CER), Canadian Federal

Agenda Item 2b
Board of Trustees Meeting
December 12, 2023

Personnel Certification Governance Committee Membership

Action
Approve

Background
The Personnel Certification Governance Committee (PCGC) is seeking the Board of Trustees approval for the following membership renewals for a two-year term ending December 31, 2025:

- Michael Hoke, PJM
- Michael Sandidge, PECI
- Dan Morse, FRCC

Standards Committee Membership

Action
Approve

Background
At the September 20, 2023 Standards Committee meeting, the committee conducted elections for the chair and vice chair roles. The following individuals were elected:

- Todd Bennett, formerly Segment 3, Elected as Chair
- Troy Brumfield, formerly Segment 1, Elected as Vice Chair

Chapter 5 of the Standards Committee charter provides, "Following the election, the successful [officer] candidates shall be presented to the NERC Board of Trustees for approval." The Board is asked to approve the individuals listed above to serve a two-year term ending December 31, 2025.

Working Capital and Reserves Policy

Action

Approve the attached, revised, Working Capital and Reserves Policy (formerly Working Capital and Operating Reserves Policy).

Background

Management is proposing several changes to the Working Capital and Reserves Policy (Policy). The revisions to the Policy were largely triggered by and designed to align with Federal Energy Regulatory Commission's (FERC or Commission) recent order approving modifications to Section II.7(b)(ii) of the Settlement Agreement between the FERC Office of Enforcement and NERC related to the FERC Office of Enforcement's findings and recommendations arising out of its 2012 performance audit of NERC. The recent FERC order is attached for your reference.

Section II.7(b) of the Settlement Agreement addresses the transparency of NERC's budget process. Section II.7(b)(i) requires quarterly budget variance reports to be filed with the Commission. Section II.7(b)(ii) of the Settlement Agreement requires NERC to file for Commission review and approval certain unbudgeted proposed expenditures from reserves or the re-direction of certain previously budgeted funds. Under the original Settlement Agreement, the threshold for filings under Section II.7(b)(ii) was $500,000 (both for the unbudgeted use of reserves and redirections of budgeted funds). The Commission-approved modifications to Section II.7(b)(ii) of the Settlement Agreement (1) raise the threshold for approval filings to 5% of the Commission-approved NERC Business Plan and Budget, (2) clarify the type of re-direction of previously budgeted funds subject to Commission review approval, and (3) require NERC to make an informational filings for expenditures of Operating Reserves and redirection of budgeted funds between 3-5% of NERC Business Plan and budget.

Under the revised Settlement Agreement, the following framework is in place:

- NERC must seek FERC approval to (1) expend unbudgeted funds from NERC's Operating Reserves that are, per occurrence, 5% or more of the Commission-approved NERC Business Plan and Budget (BP&B), and (2) redirect budgeted funds that are, per occurrence, 5% or more of the Commission-approved NERC BP&B from one of the following program areas: Bulk Power System Awareness; Compliance and Enforcement; portions of Electricity ISAC that are not participant funded; Event Analysis, Reliability Assessment, and Performance Analysis; Registration and Certification; Standards; and Personnel Certification and Credential Maintenance Program, to another program area.
- If the expenditure of Operating Reserves or the redirection of funds from one of the listed program areas to another program area is between 3%-5%, NERC is not required to seek FERC approval but must submit an information filing describing the expenditure of Operating Reserves or redirection. Each such informational filing shall be submitted thirty days prior to the expenditure or redirection of funds, or as soon as practicable, if the expenditure or redirection of funds requires NERC to act sooner than that.
- If the expenditure from Operating Reserves or the redirection of funds from one of the listed program areas to another program area is less than 3%, then no separate FERC filing

is required (for approval or informational), although NERC would describe the expenditure or the redirection is its quarterly variance reports to FERC.

- If the redirection of funds does not involve funds moving out of one of the listed program areas, then a filing (for approval or informational) is never required, irrespective of the amount of funds being redirected.
- The FERC filing requirements (for approval or information) do not apply to any redirection of budgeted funds from or expenditures from reserves specific to participant funded programs, such as CRISP.

The existing Policy includes a section that requires NERC to file with FERC any budget reallocations or use of reserves for approval in accordance with Section 7(b)(ii) of the Settlement Agreement. Management proposes to revise that language to account for the recent FERC order. The above-described filing requirements are not outlined in the Policy itself; rather, the Policy includes a cite to the relevant FERC orders (as was done in prior versions of the Policy accepted by FERC).

To align with the modified Settlement Agreement, management is also proposing to revise the internal approval thresholds for budget re-directions or unbudgeted reserve use, as follows:

- Up to 1% of budget – President and CEO authorization
- Between 1%-3% - Board of Trustees (Board) Finance and Audit Committee (FAC) approval
- Greater than 3% - Board approval (following FAC review and recommendation)

The new thresholds were designed to provide for Board approval for any budget re-directions or unbudgeted reserve uses that would trigger a FERC filing, whether an informational filing or for approval.

In addition to the modifications to address modifications to the Settlement Agreement, NERC management is taking the opportunity to modify additional provisions in the Policy. Among other things, NERC management is proposing to modify the target range for Operating Contingency Reserves (OCR) from 3.5-7% to 8-16%, which would equate to a 2024 target OCR range of $7.9 to $15.8 million. NERC's current OCR target range of 3.5% to 7% represents reserves of approximately two to four weeks (less than one month's budget) and is a relatively narrow range. The proposed 8% to 16% range would equal approximately one to two months budget, providing more operating flexibility to stay within the target range.

The consensus "best practice" reserve range for nonprofit entities is three to six months of operating expenses (i.e., budget). However, NERC's primary revenue stream of assessments is more stable than many other nonprofit entities and NERC can assess other load serving entities in the case of uncollectible assessments or unforeseen emergencies. Raising the OCR from the current to proposed target range would help mitigate certain potential unexpected circumstances, including catastrophic system loss coverage, timing of assessment collections, and special project requests.

The Policy was also updated to reflect new CRISP reserve categories and approval processes for CRISP participant funded reserve usage, which are aligned with approval processes set forth in

the CRISP agreement. These revisions will provide greater flexibility and agility for use of these reserves, as requested by the CRISP participants.

The FAC reviewed the revised Policy and recommended that the Board approve it via written consent on November 27, 2023. Trustee Kelly voted in support, but has proposed a minor revision to the first paragraph of the Policy that is reflected in the version being submitted to the Board. As passed by the FAC, the first paragraph had read:

> This policy governs the authorization of management access to funds from working capital and various reserves maintained by the North American Electric Reliability Corporation ("NERC" or "company") and authorization required for budget reallocations within a fiscal year. Determination of the company's annual working capital and reserve estimates shall be set forth separately in the company's annual business plan and budget.

Trustee Kelly is suggesting the language in the first paragraph reflected in the version now being submitted to the Board, and shown in redline below, to make clear that the reserves are required, although the specific amounts will be re-estimated annually during the budget process. This language is consistent with the current version of the Policy. She will move to have the Board approve the new Policy with the language below and attached at the time the Board considers this agenda item.

> This policy governs the authorization of management access to funds from working capital and various reserves requirements maintained by the North American Electric Reliability Corporation ("NERC" or "company") and authorization required for budget reallocations within a fiscal year. Determination of the company's annual working capital and reserve ~~estimates~~ requirements shall be set forth separately in the company's annual business plan and budget.

Working Capital and ~~Operating~~ Reserves Policy

This policy governs the authorization of management access to funds from ~~determination of the company's annual~~ working capital and ~~operating~~ various reserves requirements maintained by the North American Electric Reliability Corporation ("NERC" or "company") and authorization required for budget reallocations within a fiscal year.~~,~~ Determination of the ~~as well as the authorization of management to access these funds. The~~ company's annual working capital and ~~operating~~ reserve requirements shall be set forth separately in the company's annual business plan and budget.

1. Description of NERC's Working Capital and Reserves

Working Capital represents the amount of funds necessary to satisfy the company's projected cash flow needs during the budget year, taking into account the projected timing of the receipt of funding and timing of operating, capital and financing needs~~operating expenses~~. In addition to the foregoing, the company shall also maintain a line of credit, with a financial institution, in such amount and upon such terms and conditions, approved by the company's Finance and Audit Committee and the NERC Board of Trustees ("Board").

~~Operating~~ **Reserves** represent ~~reserves~~ the amount of funds necessary to support operations, including contingencies. ~~Operating~~ Reserves shall be divided into four categories: (1) reserves that are being held in order to satisfy future obligations under any lease, credit, loan agreement or other obligation to which the company is a party (the "Future Obligation Reserve"); (2) reserves to support programs under the ~~System Operator Certification Program Area Reserve~~purview of the Personnel Certification and Governance Committee (the "System Operator Certification Reserve"); (3) reserves to support the Cybersecurity Risk Information Sharing Program, known as CRISP (the "CRISP Reserves"); (4) reserves to fund reasonable and appropriate expenditures that were not assumed likely or anticipated in the company's budget or for which the timing was uncertain (the "Operating Contingency Reserve"). In addition to the foregoing reserves, funds may periodically be set aside in a separate reserve and released in future periods in order to mitigate wide year-to-year variations in assessments (the "Assessment Stabilization Reserve").

The amount of the company's Working Capital, Future Obligation Reserve, System Operator Certification Reserve, CRISP Reserves, Operating Contingency Reserve and Assessment Stabilization Reserve shall be identified separately and quantified each year in the business plan and budget submitted to and reviewed by the Finance and Audit Committee~~,~~ and approved by the Board.

~~The following additional guidelines shall apply to the determination~~Below is a further description of the company's ~~Operating R~~reserves and ~~Assessment Stabilization Reserve~~their intended purpose:

a. Future Obligation Reserve

The Future Obligation Reserve includes funding that has been received to satisfy future obligations under lease, credit, loan or other agreement to which the company is a party. An example is office lease funding that is in excess of actual (cash) office rent expense due to a landlord's partial abatement of rent and a budgeted lease expense based on the ~~straight-line~~straight-line amortization of rent expense over the term of the lease (under accounting guidelines). In such a case, this surplus funding is being held to offset future rent expense~~expenses~~. Another possible example includes reserves or sinking funds requirements to

meet covenant or other obligations under loan or other credit agreements.

b. System Operator Certification Reserve

The System Operator Certification Reserve supports the system operator certification program~~,~~ and includes surplus funding from operator certification and testing fees that are above incurred expenses. ~~Consistent with the intent of Section 604.4.10 of the Rules of Procedures, t~~This reserve shall be used solely to support ~~operator testing and certification needs, as determined by the company and~~programs under the purview of the Personnel Certification Governance Committee.

c. CRISP Reserves

NERC will hold the following three~~wo~~ reserves associated with the Cybersecurity Risk Information Sharing Program ("CRISP"): (1) the CRISP Defense Cost Fund, ~~and~~ (2) the CRISP Operating Reserve, and (3) the CRISP Equipment Reserve, ~~both of~~ all of which are exclusively funded by the CRISP participants. The Master Agreement between NERC and utilities participating in CRISP (the "CRISP Agreement") governs the use of these ~~both~~ CRISP Reserve accounts. The CRISP Reserves may be used solely for CRISP purposes. The CRISP Defense Cost Fund is used exclusively to fund the reasonable costs and expenses of investigation and defense (such as attorneys' fees, expert fees and expenses, and court costs) and the amount of any settlement or judgment incurred by NERC in connection with certain claims made against NERC pertaining to CRISP. The CRISP Operating Reserve is available to ensure that costs for administering and operating CRISP, including unforeseen contingencies, are sufficiently covered. The CRISP Equipment Reserve was established by the participants to fund any future potential loss of or damage to the ~~computer~~ equipment used in the CRISP program.~~The CRISP Reserve is maintained to support CRISP. The CRISP Reserve shall be held in a separate bank account and used solely for CRISP funding.~~

d. Operating Contingency Reserve

The Operating Contingency Reserve ~~are reserves~~is for contingencies that were not anticipated, assumed to be likely or for which the timing ~~of which~~ was uncertain, at the time of preparation and approval of the company's business plan and budget. The determination of the amount of the Operating Contingency Reserve shall take into consideration the projected costs and risks of ongoing operations, projected resource requirements associated with significant ongoing or emerging reliability initiatives, capital-spending forecasts and other factors that the Board, Finance and Audit Committee, and management consider appropriate. Examples of unforeseen contingencies might include supplemental resources required to assist in the evaluation of significant unforeseen events affecting the Bulk-Power System or to address regulatory directives not final at the time of budgeting. Except as otherwise approved by the Board, after review by the Finance and Audit Committee, the amount of the Operating Contingency Reserve shall be between ~~three and one half~~eight (~~3.5~~8%) percent and ~~seven~~ sixteen (~~7~~16%) percent of the company's total ~~expense and fixed asset~~ budget minus the sum of the System Operator Certification and CRISP budgets, each of which have separate reserves.

e. Assessment Stabilization Reserve

The goal of the Assessment Stabilization Reserve is to mitigate assessment volatility and have changes in annual assessments track, within a reasonable band, changes in the company's total annual budget, with the total budget reflecting prudent fiscal discipline and good stewardship of resources. Assessment stabilization

funds will be used when available to help stabilize assessments and mitigate year-to-year ~~swings~~ variation in assessments, which can result from a variety of factors, including but not limited to the application of penalty funds, surplus funds available from a prior period, a need to replenish the Operating Contingency Reserve, or significant but relatively short term operating or capital spending needs. ~~The amount~~Any use of the Assessment Stabilization Reserve ~~which is budgeted~~should, to the extent possible, be included in ~~any given year~~the annual business plan and budget and shall be determined based on a review of ~~a three-year rolling~~future forecasts of assessments, as well as the availability of surplus funds and penalty funds to fund this reserve. Except as otherwise approved by the Board, funds in the Assessment Stabilization Reserve may not be used for any purpose inconsistent with the goal of the reserve set forth in this paragraph.

The Board may approve other uses of this reserve in extreme and highly unusual circumstances, such as an unexpected and significant litigation expense in a particular year or a significant Bulk Power System event or events in a particular year which requires extraordinary investigation expenses. The Board should weigh factors such as whether other available reserves have been exhausted or already drawn down to unacceptably low level and whether other sources of funds (e.g., line of credit) are available.

~~1.~~2. Guidelines and Authorities Applicable to Expenditures of Working Capital, ~~and~~ Reserves, and Budget Reallocations

The following guidelines, limitations, and authorities shall apply to expenditures of working capital and ~~operating~~ reserves, and budget reallocations.

a. Working Capital

The chief financial ~~and administrative~~ officer shall have the authority to draw on budgeted working capital ~~reserves~~ to the extent necessary to satisfy daily cash flow requirements. To the extent necessary to meet projected cash flow and cash balance requirements, any such ~~draws~~ use of working capital ~~reserves~~ shall, to the extent possible, be promptly replenished from future surplus cash flow.

b. System Operator Certification Reserve

The company's chief financial officer is authorized to approve expenditures of System Operator Certification Reserves upon receiving approval of reserve usage from the Personnel Certification Governance Committee.

~~1. The company's president and chief executive officer is authorized to approve expenditures of System Operator Certification Reserves up to the amount set forth in the company's budget~~

~~b.~~c. ~~For~~ Operating Contingency Reserve ~~and CRISP Reserve expenditures:~~

NERC may use funds from its Operating Contingency Reserve as follows:

i. The president and chief executive officer is authorized to ~~make expenditures~~use the Operating Contingency Reserve ~~-~~up to ~~1~~2% of NERC's Federal Energy Regulatory Commission ("FERC")-approved budget. ~~to $500,000 and management shall report such expenditures to the Finance and Audit Committee no less frequently than in the quarterly company budget variance report~~

~~following the expenditure of such reserves;~~

ii. For Operating Contingency Reserve usage~~expenditures greater~~ greater than~~n~~ 1~~2~~%~~$500,000~~ but less than 3~~5~~%~~$1,000,000~~ of NERC's FERC-approved budget, ~~prior approval of~~ the Board's Finance and Audit Committee ("FAC") must provide prior approval of such use. ~~is required; and~~

iii. For Operating Contingency Reserve usage of 3~~5~~% of NERC's FERC-approved budget or greater,~~expenditures in excess of $1,000,000, approval of~~ the Board must provide prior approval of such use~~is required~~, after notice to and recommendation by the ~~Finance and Audit Committee~~FAC.

Management must report any use of the Operating Contingency Reserve in the company's quarterly budget variance reports, which are submitted to and reviewed by the FAC.

d. CRISP Reserves

Expenditures of the CRISP Defense Cost Fund must be undertaken in accordance with the CRISP Agreement.

The company's chief financial officer is authorized to use funds from the CRISP Equipment Reserve upon receiving approval of reserve usage from the CRISP Governance Advisory Committee.

NERC may use funds from the CRISP Operating Reserve in accordance with the CRISP Agreement, which provides as follows:

i. NERC is authorized to use the CRISP Operating Reserves for up to 2.5% of the annual CRISP budget.

ii. For CRISP Operating Reserve usage greater than 2.5% but less than 6.5% of the annual CRISP budget, the CRISP Governance Advisory Committee must provide prior approval.

iii. For CRISP Operating Reserve usage of 6.5% of the annual CRISP budget or greater, two-thirds of the CRISP participants must provide prior approval.

Management must report any use of the CRISP Operating Reserve in the company's quarterly budget variance reports, which are submitted to and reviewed by the FAC.

~~c.~~e. Future Obligations Reserves

The company shall ~~segregate Future Obligation Reserves to~~ ensure that Future Obligations Reserves ~~they~~ are available for use in satisfying such future obligations; provided however, such funds shall also be available to satisfy any coverage and liquidity requirements under the terms of any loan or credit agreement to which the company is a party.

~~All expenditures of reserve funds are subject to other applicable company policies and procedures, including currently effective procurement policies and delegations of authority approved by the president and chief executive officer, and shall be separately reported in the budget variance reports prepared by management, and included in the quarterly Finance and Audit Committee agenda materials that are posted~~

~~on the company's website.~~

~~The procedures set forth in Section 1108 of the Rules of Procedure, including Board and FERC approval, shall continue to apply in circumstances where the company requires funding between normal annual budget cycles in excess of amounts available through approved assessments, working capital and operating reserve resources.~~

f. Budget Reallocations

During a calendar year, NERC may reallocate funds budgeted for one program area to another program area to address changing priorities and resource needs, as follows:

i. For budget reallocations up to 1~~2~~% of NERC's FERC-approved budget, the company's president and chief executive officer is authorized to approve such budget reallocation, provided that such reallocations do not result in NERC exceeding its overall budget for that calendar year.

ii. For budget reallocations between 1% and 3%~~2% %5~~ of NERC's FERC-approved budget, the FAC must approve the reallocation prior to any such reallocation.

iii. For budget reallocations of 3%~~5~~ or greater of NERC's FERC-approved budget, the Board must approve the reallocation, after notice to and recommendation by the FAC, prior to any such reallocation.

Management must report any budget reallocations in the company's quarterly budget variance reports, which are submitted to and reviewed by the FAC, accepted by the Board, and filed with FERC.

g. Special Assessments

The procedures set forth in Section 1108 of the Rules of Procedure, including Board and FERC approval, shall continue to apply in circumstances where the company requires funding between normal annual budget cycles in excess of amounts available through approved assessments, working capital and operating reserve resources.

Federal Energy Regulatory Commission Approvals and Information Filings for Use of Reserves and Budget Reallocations~~Guidelines and Authorities Required to Reallocate Budgeted Expenditures on an Intra-year Basis~~

3.

~~During the course of the year, events may unfold such that some approved budget areas may run below budget, making funds available to satisfy other resource needs based on changing priorities. In the event such under runs occur, the president and chief executive officer shall have the authority to reallocate and expend such funds, provided that such reallocation and expenditure does not result in the company's overall approved budget being exceeded and such expenditures shall be reported by management in the company's quarterly budget variance reports, which are submitted to and reviewed by the Finance and Audit Committee.~~

~~Federal Energy Regulatory Commission (FERC) Filing Requirements~~

Any ~~reallocation of budgeted funds~~budget reallocations ~~and/~~or use of ~~expenditure of Operating~~ Reserves, including use of ~~from~~ the Assessment Stabilization Reserve, other than as approved by the NERC Board ~~of Trustees~~ and FERC as part of the company's annual business plan and budget, shall be submitted to FERC for approval or via an informational filing in accordance with the terms and conditions of Section 7(b)(ii) of the Settlement Agreement dated January 15, 2013 between FERC and the company, approved by FERC in its order *North American Electric Reliability Corp.*, 142 FERC ¶ 61,042 (2013), as modified in *North American Electric Reliability Corp.*, 185 FERC ¶ 61,055 (2023).

Working Capital and Reserves Policy

This policy governs the authorization of management access to funds from working capital and various reserves requirements maintained by the North American Electric Reliability Corporation ("NERC" or "company") and authorization required for budget reallocations within a fiscal year. Determination of the company's annual working capital and reserve requirements shall be set forth separately in the company's annual business plan and budget.

1. Description of NERC's Working Capital and Reserves

Working Capital represents the amount of funds necessary to satisfy the company's projected cash flow needs during the budget year, taking into account the projected timing of the receipt of funding and timing of operating, capital and financing needs. In addition to the foregoing, the company shall also maintain a line of credit, with a financial institution, in such amount and upon such terms and conditions, approved by the company's Finance and Audit Committee and the NERC Board of Trustees ("Board").

Reserves represent the amount of funds necessary to support operations, including contingencies. Reserves shall be divided into four categories: (1) reserves that are being held in order to satisfy future obligations under any lease, credit, loan agreement or other obligation to which the company is a party (the "Future Obligation Reserve"); (2) reserves to support programs under the purview of the Personnel Certification and Governance Committee (the "System Operator Certification Reserve"); (3) reserves to support the Cybersecurity Risk Information Sharing Program, known as CRISP (the "CRISP Reserves"); (4) reserves to fund reasonable and appropriate expenditures that were not assumed likely or anticipated in the company's budget or for which the timing was uncertain (the "Operating Contingency Reserve"). In addition to the foregoing reserves, funds may periodically be set aside in a separate reserve and released in future periods in order to mitigate wide year-to-year variations in assessments (the "Assessment Stabilization Reserve").

The amount of the company's Working Capital, Future Obligation Reserve, System Operator Certification Reserve, CRISP Reserves, Operating Contingency Reserve and Assessment Stabilization Reserve shall be identified separately and quantified each year in the business plan and budget submitted to and reviewed by the Finance and Audit Committee and approved by the Board.

Below is a further description of the company's reserves and their intended purpose:

a. Future Obligation Reserve

The Future Obligation Reserve includes funding that has been received to satisfy future obligations under lease, credit, loan or other agreement to which the company is a party. An example is office lease funding that is in excess of actual (cash) office rent expense due to a landlord's partial abatement of rent and a budgeted lease expense based on the straight-line amortization of rent expense over the term of the lease (under accounting guidelines). In such a case, this surplus funding is being held to offset future rent expense. Another possible example includes reserves or sinking funds requirements to meet covenant or other obligations under loan or other credit agreements.

b. System Operator Certification Reserve

The System Operator Certification Reserve supports the system operator certification program and includes surplus funding from operator certification and testing fees that are above incurred expenses. This reserve shall be used solely to support programs under the purview of the Personnel Certification Governance Committee.

c. CRISP Reserves

NERC will hold the following three reserves associated with the Cybersecurity Risk Information Sharing Program ("CRISP"): (1) the CRISP Defense Cost Fund, (2) the CRISP Operating Reserve, and (3) the CRISP Equipment Reserve, all of which are exclusively funded by the CRISP participants. The Master Agreement between NERC and utilities participating in CRISP (the "CRISP Agreement") governs the use of these CRISP Reserve accounts. The CRISP Reserves may be used solely for CRISP purposes. The CRISP Defense Cost Fund is used exclusively to fund the reasonable costs and expenses of investigation and defense (such as attorneys' fees, expert fees and expenses, and court costs) and the amount of any settlement or judgment incurred by NERC in connection with certain claims made against NERC pertaining to CRISP. The CRISP Operating Reserve is available to ensure that costs for administering and operating CRISP, including unforeseen contingencies, are sufficiently covered. The CRISP Equipment Reserve was established by the participants to fund any future potential loss of or damage to the equipment used in the CRISP program.

d. Operating Contingency Reserve

The Operating Contingency Reserve is for contingencies that were not anticipated, assumed to be likely or for which the timing was uncertain, at the time of preparation and approval of the company's business plan and budget. The determination of the amount of the Operating Contingency Reserve shall take into consideration the projected costs and risks of ongoing operations, projected resource requirements associated with significant ongoing or emerging reliability initiatives, capital-spending forecasts and other factors that the Board, Finance and Audit Committee, and management consider appropriate. Examples of unforeseen contingencies might include supplemental resources required to assist in the evaluation of significant unforeseen events affecting the Bulk-Power System or to address regulatory directives not final at the time of budgeting. Except as otherwise approved by the Board, after review by the Finance and Audit Committee, the amount of the Operating Contingency Reserve shall be between eight (8%) percent and sixteen (16%) percent of the company's total budget minus the sum of the System Operator Certification and CRISP budgets, each of which have separate reserves.

e. Assessment Stabilization Reserve

The goal of the Assessment Stabilization Reserve is to mitigate assessment volatility and have changes in annual assessments track, within a reasonable band, changes in the company's total annual budget, with the total budget reflecting prudent fiscal discipline and good stewardship of resources. Assessment stabilization funds will be used when available to help stabilize assessments and mitigate year-to-year variation in assessments, which can result from a variety of factors, including but not limited to the application of penalty funds, surplus funds available from a prior period, a need to replenish the Operating Contingency Reserve, or significant but relatively short term operating or capital spending needs. Any use of the Assessment Stabilization Reserve should, to the extent possible, be included in the annual business plan and budget and shall be determined based on a review of future forecasts of assessments, as well as the availability of surplus funds and penalty funds to fund this reserve. Except as otherwise approved by the

Board, funds in the Assessment Stabilization Reserve may not be used for any purpose inconsistent with the goal of the reserve set forth in this paragraph. The Board may approve other uses of this reserve in extreme and highly unusual circumstances, such as an unexpected and significant litigation expense in a particular year or a significant Bulk Power System event or events in a particular year which requires extraordinary investigation expenses. The Board should weigh factors such as whether other available reserves have been exhausted or already drawn down to unacceptably low level and whether other sources of funds (e.g., line of credit) are available.

2. Guidelines and Authorities Applicable to Expenditures of Working Capital, Reserves, and Budget Reallocations

The following guidelines, limitations, and authorities shall apply to expenditures of working capital and reserves, and budget reallocations.

a. Working Capital

The chief financial officer shall have the authority to draw on budgeted working capital to the extent necessary to satisfy daily cash flow requirements. To the extent necessary to meet projected cash flow and cash balance requirements, any such use of working capital shall, to the extent possible, be promptly replenished from future surplus cash flow.

b. System Operator Certification Reserve

The company's chief financial officer is authorized to approve expenditures of System Operator Certification Reserves upon receiving approval of reserve usage from the Personnel Certification Governance Committee.

c. Operating Contingency Reserve

NERC may use funds from its Operating Contingency Reserve as follows:

i. The president and chief executive officer is authorized to use the Operating Contingency Reserve up to 1% of NERC's Federal Energy Regulatory Commission ("FERC")-approved budget.

ii. For Operating Contingency Reserve usage greater than 1% but less than 3% of NERC's FERC-approved budget, the Board's Finance and Audit Committee ("FAC") must provide prior approval of such use.

iii. For Operating Contingency Reserve usage of 3% of NERC's FERC-approved budget or greater, the Board must provide prior approval of such use, after notice to and recommendation by the FAC.

Management must report any use of the Operating Contingency Reserve in the company's quarterly budget variance reports, which are submitted to and reviewed by the FAC.

d. CRISP Reserves

Expenditures of the CRISP Defense Cost Fund must be undertaken in accordance with the CRISP Agreement.

The company's chief financial officer is authorized to use funds from the CRISP Equipment Reserve upon

receiving approval of reserve usage from the CRISP Governance Advisory Committee.

NERC may use funds from the CRISP Operating Reserve in accordance with the CRISP Agreement, which provides as follows:

i. NERC is authorized to use the CRISP Operating Reserves for up to 2.5% of the annual CRISP budget.

ii. For CRISP Operating Reserve usage greater than 2.5% but less than 6.5% of the annual CRISP budget, the CRISP Governance Advisory Committee must provide prior approval.

iii. For CRISP Operating Reserve usage of 6.5% of the annual CRISP budget or greater, two-thirds of the CRISP participants must provide prior approval.

Management must report any use of the CRISP Operating Reserve in the company's quarterly budget variance reports, which are submitted to and reviewed by the FAC.

e. Future Obligations Reserves

The company shall ensure that Future Obligations Reserves are available for use in satisfying such future obligations; provided however, such funds shall also be available to satisfy any coverage and liquidity requirements under the terms of any loan or credit agreement to which the company is a party.

f. Budget Reallocations

During a calendar year, NERC may reallocate funds budgeted for one program area to another program area to address changing priorities and resource needs, as follows:

i. For budget reallocations up to 1% of NERC's FERC-approved budget, the company's president and chief executive officer is authorized to approve such budget reallocation, provided that such reallocations do not result in NERC exceeding its overall budget for that calendar year.

ii. For budget reallocations between 1% and 3% of NERC's FERC-approved budget, the FAC must approve the reallocation prior to any such reallocation.

iii. For budget reallocations of 3% or greater of NERC's FERC-approved budget, the Board must approve the reallocation, after notice to and recommendation by the FAC, prior to any such reallocation.

Management must report any budget reallocations in the company's quarterly budget variance reports, which are submitted to and reviewed by the FAC, accepted by the Board, and filed with FERC.

g. Special Assessments

The procedures set forth in Section 1108 of the Rules of Procedure, including Board and FERC approval, shall continue to apply in circumstances where the company requires funding between normal annual budget cycles in excess of amounts available through approved assessments, working capital and operating reserve resources.

3. Federal Energy Regulatory Commission Approvals and Information Filings for Use of Reserves and Budget Reallocations

Any budget reallocations or use of Reserves, including use of the Assessment Stabilization Reserve, other than as approved by the NERC Board and FERC as part of the company's annual business plan and budget, shall be submitted to FERC for approval or via an informational filing in accordance with the terms and conditions of Section 7(b)(ii) of the Settlement Agreement dated January 15, 2013 between FERC and the company, approved by FERC in its order *North American Electric Reliability Corp.*, 142 FERC ¶ 61,042 (2013), as modified in *North American Electric Reliability Corp.*, 185 FERC ¶ 61,055 (2023).

WECC Regional Reliability Standard VAR-501-WECC-4

Action

Adopt the following standards documents and authorize staff to file with applicable regulatory authorities:

- **Reliability Standard VAR-501-WECC-4 – Power System Stabilizer (PSS)**
  [VAR-501-WECC-4] [Redline to last approved]
- **Retirement**
  [VAR-501-WECC-3.1]

Background

The VAR-501-WECC-4 regional Reliability Standard was initially developed to ensure each standard undergoes a substantive review at least once every five years of Power System Stabilizer (PSS) in the Western Electricity Coordinating Council (WECC) Entity footprint.

Proposed regional Reliability Standard VAR-501-WECC-4 was approved as Non-Substantive changes under the WECC Reliability Standards Development Procedures by the WECC Standards Committee (WSC) on December 6, 2022. Under WECC's process, separate WECC Board of Directors approval is not required for these changes.

Summary

The proposed revisions reflected in the proposed regional Reliability Standard VAR-501-WECC-4 Power Stabilizer (PSS) include the following:

- Updates to the document template, numbering, and template sections as provided by NERC
- Removal of stale-dated verbiage included in the Effective Date
- Removal of the redundant phrase, "[F]or auditing purposes." From Measure M4
- Updates to syntax
- Correction of "[s]tandard" to "[S]tandard"
- Correction of "dampen" to "damp" in the Rationale and Guidance section

NERC staff supports the proposed regional Reliability Standard, and the proposed standard continues to meet the criteria for a regional Reliability Standard. NERC posted the proposed standard for a 45-day comment period from August 16, 2023 - September 29, 2023. Most of the comments received were favorable to the proposed regional Reliability Standard; however, one corporate entity responded, without accompanying comment, that the proposed standard did not meet the criteria for a regional standard.

Pertinent FERC Directives

None.

Additional Information

Links to the relevant project history pages and files are included here for reference:

[WECC Standards Under Development]

Project 2020-04 Modifications to CIP-012

Action

Adopt the following standards documents and authorize staff to file with applicable regulatory authorities:

- Reliability Standard – CIP-012-2 – Cyber Security – Communications between Control Centers

  CIP-012-2 Cyber Security – Communications between Control Centers clean (nerc.com) (the latest version available)

  CIP-012-2 Cyber Security – Communications between Control Centers redline (nerc.com) (the latest version available)

- Implementation Plan

  CIP-012-2 Implementation Plan (nerc.com) (the latest version available)

- Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs)

  VRF_VSL_Justifications (nerc.com) (the latest version available)

- Retirements

  Reliability Standard – CIP-012-1 – Cyber Security – Communications between Control Centers

Background

On January 23, 2020, the Federal Energy Regulatory Commission (FERC) issued Order No. 866[1] approving CIP-012-1 and directing NERC to develop modifications to CIP-012-1 to require Responsible Entities to develop one or more plan(s) to implement protections for the availability of communication links and data communicated between the Bulk Electric System (BES) Control Centers. In response to the directive in Order No. 866, the Project 2020-04 SDT refined the subparts of Requirement R1 to include additional requirements for entities to identify methods used to mitigate the risk posed by the loss of the ability to communicate Real-time Assessment and Real-time monitoring data between Control Centers.

Summary

In Order No. 866, FERC also stated that "maintaining the availability of communication networks and data should include provisions for incident recovery and continuity of operations in a responsible entity's compliance plan."[2] FERC recognized that the redundancy of communication links cannot always be guaranteed and acknowledged that there should be plans for both recovery of compromised communication links and the use of backup communication capability[3]. The standard drafting team (SDT) recognized that Responsible Entities may already have addressed these contingencies in their existing recovery and/or

[1] *See Critical Infrastructure Protection Reliability Standard CIP-012-1 – Cyber Security – Communications between Control Centers*, Order No. 866, 170 FERC ¶ 61.031 (2020).
[2] *Id.* P 36.
[3] *See id.* PP 35-36.

incident response plan(s). Relevant evidence arising out of these plans may be referenced to meet CIP-012 requirements, avoiding duplication of administrative efforts.

The SDT drafted requirements to provide Responsible Entities the latitude to protect the communication links, the data, or both to mitigate the associated risks, consistent with the capabilities of the Responsible Entity's operational environment.

Standards Development Process

The proposed Reliability Standard CIP-012-2 was posted and did not pass for the first three ballots. The fourth formal comment period and ballot were posted from October 24 - November 2, 2023. The fourth ballot for the proposed standard received 84.22 percent approval and 83.16 percent quorum, with the associated implementation plan receiving 88.98 percent approval with 83.57 percent quorum. The non-binding polls for the Violation Risk Factors and Violation Severity Levels achieved 80.73 supportive opinions with an 80.58 percent quorum.

The SDT will conduct a final ballot from November 28 - December 7, 2023. The final ballot results will be reviewed at the Board of Trustees meeting.

Minority Issues

None.

Pertinent FERC Directives

On January 21, 2016, the FERC issued Order No. 822,[4] approving seven Critical Infrastructure Protection (CIP) Reliability Standards and new or modified terms in the Glossary of Terms Used in NERC Reliability Standards (NERC Glossary) and directing modifications to the CIP Reliability Standards. Among others, the Commission directed the NERC to "develop modifications to the CIP Reliability Standards to require Responsible Entities[5] to implement controls to protect, at a minimum, communication links and sensitive BES data communicated between BES Control Centers in a manner that is appropriately tailored to address the risks posed to the BES by the assets being protected (i.e., high, medium, or low impact)."[6]

In response to the directive in Order No. 822, Project 2016-02 SDT drafted Reliability Standard CIP-012-1 to require Responsible Entities to implement controls to protect sensitive BES data and communication links between BES Control Centers. Due to the sensitivity of the data being communicated between Control Centers, as defined in the NERC Glossary, the standard applies to all impact levels (i.e., high, medium, and low impact).

Order No. 866 further directed NERC to revise CIP-012-1 to require Responsible Entities to develop one or more plan(s) to implement protections for the availability of communication links and data communicated between the BES Control Centers.

Cost Effectiveness

No concerns regarding cost effectiveness were identified.

Additional Information

[4] *Revised Critical Infrastructure Protection Reliability Standards,* Order No. 822, 154 FERC ¶ 61,037 (2016).
[5] As used in the CIP Standards, a Responsible Entity refers to the registered entities subject to the CIP Standards.
[6] Order No.822, 154 FERC ¶ 61,037 at P 53.

A link to the project history and files is included here for reference:
Project 2020-04 Modifications to CIP-012 (nerc.com)

2024-2026 Reliability Standards Development Plan

Action

Approve the 2024-2026 Reliability Standards Development Plan (RSDP) and authorize NERC staff to file with the applicable regulatory authorities.

Background

Pursuant to section 310 of the NERC Rules of Procedure, NERC is required to develop and provide an annual RSDP to the applicable governmental authorities. The 2024-2026 RSDP includes time frames and anticipated resources for each project under development or anticipated to begin by the end of the year.

A draft RSDP was posted for a public comment period from July 24 - August 22, 2023. The Standards Committee (SC) endorsed the RSDP at its October 18, 2023 meeting. On October 19, 2023, the Federal Energy Regulatory Commission issued Order No. 901. Order No. 901 requires the development of Reliability Standards to address inverter-based resource issues in tranches over the next three years. The issuance of Order No. 901 required NERC staff to reprioritize some projects in the 2024-2026 RSDP to reflect the deadlines provided in the order.

In the event a Standard Authorization Request or FERC directive is received prior to submitting the RSDP to the applicable governmental authorities, the document will be updated appropriately. NERC and the SC will continue working with NERC committees and task forces to bridge potential reliability gaps and risks.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Agenda Item 4c
Board of Trustees Meeting
December 12, 2023

Reliability Standards Development Plan

2024-2026

December 12, 2023

RELIABILITY | RESILIENCE | SECURITY




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Table of Contents

Background

Pursuant to Section 310 of the NERC Rules of Procedure, NERC is required to develop and provide to applicable governmental authorities an annual Reliability Standards Development Plan (RSDP) for Reliability Standards development.[1] Each annual RSDP must include a progress report comparing results achieved to the prior year's RSDP. NERC is required to consider the comments and priorities of the applicable governmental authorities in developing and updating the annual RSDP. NERC also provides the RSDP to the NERC Standards Committee (SC) for review and posts the RSDP for industry comment.

As described herein, this RSDP for 2024-2026 builds upon the goals of the previous RSDPs.

[1] NERC Rules of Procedure, Section 310, effective August 25, 2022, https://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx

Executive Summary

The 2024-2026 RSDP provides insight into standards development activities anticipated at the time of publication so that stakeholders may adjust resources to ensure the completion of standards development objectives. Other standard development processes, such as Developing an Interpretation and Developing a Variance, may impact the RSDP and are included herein.[2] To help the industry understand resource requirements for each project, the RSDP includes approximated time frames and anticipated resource expectations for each project under development.

This RSDP contemplates that the work of the Reliability and Security Technical Committee (RSTC) and working groups thereunder may result in more Standard Authorization Requests (SARs) and subsequent standards projects.[3] It is also important to note that projects may be generated using the Electric Reliability Organization risk framework.

Periodic Reviews and initiatives also enable NERC to identify requirements that do not sufficiently improve reliability and should, therefore, be retired. Periodic Reviews will be initiated to ensure that minimum requirements and expectations for periodic reviews are met.

While most of the work in the next three years will focus on new SARs and multiple projects to address inverter–based resources, new or emerging risks may be identified that could generate new standards development projects. NERC will continue to seek input and recommendations from the Reliability Issues Steering Committee (RISC) regarding emerging or potential Bulk Electric System (BES) reliability risks that may require revisions to existing standards or new standards development.[4]

To help determine the impact of potential risk to BES reliability, NERC will use a variety of feedback mechanisms, including but not limited to the ERO Enterprise Compliance Monitoring and Enforcement Program (CMEP), RISC reports, Events Analysis (EA), as well as any published EA Lessons Learned. The Regional Entities also have feedback mechanisms to solicit industry comments. This additional feedback helps implement approaches to address industry concerns and NERC standards. Input into standards will continue to coordinate with the North American Energy Standards Board as appropriate. In assessing feedback with standards and the standards development process, NERC focuses on available resiliency, reliability, and security information. Data from the CMEP is leveraged to determine whether a standard revision is needed to address an identified risk effectively.

[2] A full list of standard development processes are detailed in the Standards Processes Manual, NERC Rules of Procedure – Appendix 3A, https://www.nerc.com/AboutNERC/RulesOfProcedure/Appendix_3A_SPM_Clean_Mar2019.pdf

[3] Reliability and Security Technical Committee, https://www.nerc.com/comm/RSTC/Pages/default.aspx

[4] Reliability Issues Steering Committee, https://www.nerc.com/comm/RISC/Pages/default.aspx

Progress Report

Pursuant to Section 310 of the NERC Rules of Procedure, NERC offers the following progress report on Reliability Standards development.

FERC Directives

As of October 30, 2023, eleven outstanding directives are being resolved through the standards development process. The status of the Standards directives is reported quarterly to the NERC Board of Trustees (Board).

Continuing Projects

The other projects from the previous RSDP are complete or are expected to be complete this year, except the following (new and existing), which will continue into 2024 and beyond:

1. Project 2017-01 Modifications to BAL-003-1.1 (phase 2)
2. Project 2019-04 Modifications to PRC-005-6
3. Project 2020-02 Modifications to PRC-024 (Generator Ride-through)
4. Project 2021-01 Modifications to MOD-025 and PRC-019
5. Project 2021-02 Modifications to VAR-002
6. Project 2021-03 CIP-002 Transmission Owner Control Centers
7. Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination (phase 2, EOP-012-2)
8. Project 2021-08 Modifications to FAC-008
9. Project 2022-02 Modifications to TPL-001-5.1 and MOD-032-1
10. Project 2022-03 Energy Assurance with Energy–Constrained Resources
11. Project 2022-04 EMT Modeling
12. Project 2022-05 Modifications to CIP-008 Reporting Threshold
13. Project 2023-01 EOP-004 IBR Event Reporting
14. Project 2023-02 Performance of IBRs
15. Project 2023-03 Internal Network Security Monitoring (INSM)
16. Project 2023-04 Modifications to CIP-003
17. Project 2023-05 Modifications to FAC-001 and FAC-002
18. Project 2023-06 CIP-014 Risk Assessment Refinement
19. Project 2023-07 Modifications to TPL-001-5.1 Transmission System Planning Performance Requirements for Extreme Weather
20. Project 2023-08 Modifications of MOD-031 Demand and Energy Data

Additional project information is available on the NERC website on the Standards web page.[5]

[5] As of the date of publication, the subject web page resides at http://www.nerc.com/pa/Stand/Pages/default.aspx.

The following projects have been, or are planned to be, completed in 2023 (actual and anticipated Board adoption dates are noted):

1. Project 2016-02 Modifications to CIP Standards (anticipated Board adoption February 2024)
2. Project 2020-04 Modifications to CIP-012 (anticipated Board adoption December 2023)
3. Project 2020-06 Verifications of Models and Data for Generators (anticipated Board adoption November 2025)
4. Project 2021-03 CIP-002 Transmission Owner Control Centers (Transmission Owner Control Centers (TOCCs) SAR anticipated Board adoption December 2024)
5. Project 2021-05 Modifications to PRC-023 (adopted by the Board February 2023)
6. Project 2021-06 Modifications to IRO-010 and TOP-003 (adopted by the Board August 2023)
7. Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination (Phase 2) (EOP-011-4 and TOP-002-5 adopted by the Board October 2023)
8. Project 2022-01 Reporting ACE Definition and Associated Terms (anticipated Board adoption February 2024)

Project Prioritization

In determining high, medium, or low priority designations for projects as listed in this RSDP, the following factors were taken into consideration:

1. Outstanding regulatory and NERC Board of Trustees directives with filing deadlines (High Priority)
2. RISC category rankings of high impact and NERC annual work plan priorities with consideration of probability of occurrence (High or Medium Priority)
3. Potential reliability risks from stakeholders and technical committees provided through feedback mechanisms (High, Medium, or Low Priority, based on the risk)
4. Outstanding regulatory directives without regulatory deadlines or "soft directives" such as considerations (High or Medium Priority)
5. Outstanding requirements that are known candidates for retirement (Medium or Low Priority)
6. Any known adverse content and quality assessments (likely Low Priority, as any reliability gaps identified have already been addressed)

High Priority

- Project 2016-02 Modifications to CIP Standards (drafting estimated to be completed by December 2023 requiring seven industry subject matter experts for approximately 100 work hours each for the remaining part of this project).
- Project 2020-02 Modifications to PRC-024 (Generator Ride-through) (drafting estimated to be completed by May 2024, requiring approximately nine industry subject matter experts for approximately 120 work hours each for the remaining part of this project).
- Project 2020-04 Modifications to CIP-012 (drafting estimated to be completed by December 2023, requiring approximately 10 subject matter experts for approximately 60 work hours each for this project). Delete?
- Project 2021-03 CIP-002 Transmission Owner Control Centers (drafting estimated to be completed by December 2024, requiring approximately eight subject matter experts for approximately 40 work hours each for this project). Three additional SARs pertaining to CIP-002 are assigned to this project. Additional subject matter experts are being solicited to address these SARs.
- Project 2021-04 Modifications to PRC-002-2 (Phase 2) (drafting estimated to be completed by October 2024 requiring approximately 10 subject matter experts for approximately 40 work hours each for this project)
- Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination (drafting estimated to be completed in two phases over 2022-2024; the first phase was completed in September 2022. Phase 2, standards EOP-011-4 and TOP-002-5 was completed in October 2023, Phase 3, EOP-012-2, is expected to be completed by February 2024, requiring 14 subject matter experts for approximately 40 work hours each for the remainder of the project).
- Project 2022-03 Energy Assurance with Energy–Constrained Resources (Operations SAR) (drafting estimated to be completed by May 2024 requiring approximately 14 industry subject matter experts for approximately 120 work hours each for the remaining part of this project).
- Project 2023-02 Performance of IBRs (drafting estimated to be completed by October 2024, requiring approximately 14 subject matter experts for approximately 80 work hours each for this project).

- Project 2023-03 Internal Network Security Monitoring (INSM) (drafting estimated to be completed by March 2024, requiring approximately 10 subject matter experts for approximately 50 work hours each for this project).
- Project 2023-04 Modifications to CIP-003 (drafting estimated to be completed by August 2024, requiring approximately 12 subject matter experts for approximately 60 work hours each for this project).
- Project 2023-06 CIP-014 Risk Assessment Refinement (drafting estimated to be completed by December 2023, requiring approximately 10 subject matter experts for approximately 40 work hours each for this project).
- Project 2023-07 Modifications to TPL-001-5.1 Transmission System Planning Performance Requirements for Extreme Weather (drafting estimated to be completed by July 2024, requiring approximately 10 subject matter experts for approximately 60 work hours each for this project).

Medium Priority

- Project 2020-06 Verifications of Models and Data for Generators (drafting estimated to be completed by October 2025, requiring approximately 12 subject matter experts for approximately 60 work hours each for this project).
- Project 2021-01 Modifications to MOD-025 and PRC-019 (drafting estimated to be completed by December 2025 requiring approximately 11 subject matter experts for approximately 60 work hours each for this project).
- Project 2022-03 Energy Assurance with Energy–Constrained Resources (Planning SAR) (drafting estimated to be completed by December 2025 requiring approximately 14 industry subject matter experts for approximately 120 work hours each for the remaining part of this project).

Low Priority

- Project 2017-01 Modifications to BAL-003-1.1 (phase 2) (drafting estimated to be completed by May 2025, requiring approximately 10 subject matter experts for approximately 40 work hours each for this project).
- Project 2019-04 Modifications to PRC-005-6 (drafting estimated to be completed by May 2025, requiring approximately 13 subject matter experts for approximately 40 work hours each for this project).
- Project 2021-02 Modifications to VAR-002 (drafting estimated to be completed by May 2025, requiring approximately 13 subject matter experts for approximately 40 work hours each for this project).
- Project 2021-08 Modifications to FAC-008 (drafting estimated to be completed by December 2023, requiring approximately 10 subject matter experts for approximately 60 work hours each for this project).
- Project 2022-01 Reporting ACE Definition and Associated Terms (drafting estimated to be completed by December 2023 requiring approximately 10 subject matter experts for approximately 40 work hours each for this project).
- Project 2022-02 Modifications to TPL-001-5.1 and MOD-032-1 (project to be completed in phases with MOD-032 drafting as Phase 1; drafting estimated to be completed by October 2026 (Phase 1) requiring approximately 10 subject matter experts for approximately 60 work hours each for this project and Phase 2 drafting estimated to be completed by November 2024).
- Project 2022-04 EMT Modeling (drafting estimated to be completed by October 2026, requiring approximately 10 subject matter experts for approximately 40 work hours each for this project).

- Project 2022-05 Modifications to CIP-008 Reporting Threshold (drafting estimated to be completed by August 2026, requiring approximately 10 subject matter experts for approximately 80 work hours each for this project).
- Project 2023-01 EOP-004 IBR Event Reporting (drafting estimated to be completed by August 2024, requiring approximately 12 subject matter experts for approximately 60 work hours each for this project).
- Project 2023-05 Modifications to FAC-001 and FAC-002 (drafting estimated to be completed by October 2025, requiring approximately 10 subject matter experts for approximately 40 work hours each for this project).
- Project 2023-08 Modifications of MOD-031 Demand and Energy Data (drafting estimated to be completed by October 2025 requiring approximately 10 subject matter experts for approximately 40 work hours each for this project).

Over the past two years, NERC Standards Development has seen a tremendous increase in the number of projects. This is due to the need to address grid transformation regarding inverter-based resources and Distributed Energy Resources, cyber security risks, and extreme weather. Also, the release of FERC Order No. 901 has impacted the prioritization of work.

To date there are 25 projects, with eight initiated in 2021, five in 2022, and eight in 2023. Also, 11 FERC directives must be addressed through the standards development process, in addition to certain projects NERC has identified as high priority due to reliability risk identified through event reports or other studies, which have resulted in an increase in volume of work. Due to the recent release of FERC Order No. 901 the project prioritization was revisited and is reflected in the table below.

As a part of the prioritization, NERC staff has reviewed the RISC Report, input from the RSTC, the Standing Committee Coordination Group, and 2023 NERC work plan priorities. As a result, personnel resources will focus on completing the following in 2024:

Completed By the End of 2024		
2020-02 Modifications to PRC-024 (generator ride-through)	2021-03 Modifications to CIP-002 (TOCC)	2021-07 Extreme Cold Weather
2021-04 Modifications to PRC-002 (data sharing)	2016-02 Virtualization	2023-07 TPL-001 Extreme Weather
2023-02 Performance of IBRs	2023-03 Internal Network Security Monitoring	2022-03 Energy Assurance (Operations)
	2023-04 CIP-003 Low Impact Criteria	
	2023-06 Physical Security	

Standards Development Projects Overview

Standards Development Projects Overview

The NERC RSTC subcommittees, working groups, and task forces conduct work plan activities as assigned. Known and emerging risks are reviewed and assessed and may result in a SAR being submitted to initiate a standards development project. Also, as industry works to operate a reliable and secure grid, a SAR may be submitted to address risks.

As a result of the growth in the use of inverters as part of the Bulk Power System (BPS), the NERC Inverter-based Resource (IBR) Performance Task Force (IRPTF) undertook an effort to perform a comprehensive review of all NERC Reliability Standards to determine if there were any potential gaps or improvements. The IRPTF identified several issues as part of this effort and documented its findings and recommendations in the "IRPTF Review of NERC Reliability Standards White Paper," which was approved in March 2020 by the Operating Committee and the Planning Committee (now part of the RSTC). This assessment generated several projects listed in the RSDP.

The ERO's focus on cyber security is also at the forefront of addressing reliability risks. Standard development projects addressing internal network security monitoring, reporting threshold for Cyber Security Incidents, and Transmission Planning Assessments result from continued actions to keep the grid secure.

Other Projects Commencing

The Reliability Standard IRO-006-5 Reliability Coordination – Transmission Loading Relief meets the criteria for periodic review in 2024. SARs, emerging risks to the BPS, and FERC regulatory directives that may occur subsequent to publishing this RSDP may prompt additional projects through 2024 and periodic reviews may be delayed.

Standards Grading

At the joint Standards Committee (SC) and Compliance and Certification Committee (CCC) meeting on July 20, 2022, the committees discussed the efficacy of the annual Standards Grading process and potential opportunities for improvement. The two committees agreed there was a need for a joint task force to review the Standards Grading process, including the need, the methodology, and the outputs. Volunteers from both committees were solicited, and a task force was formed. Recommendations will be provided once the task force has completed its review.

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Standards Actions

Soo Jin Kim, Vice President of Engineering and Standards
Board of Trustees Meeting
December 12, 2023

RELIABILITY | RESILIENCE | SECURITY




Reliability Standard VAR-501-WECC-4

- Background
  - The VAR-501-WECC-4 - Power System Stabilizer regional Reliability Standard was initially developed to ensure each standard undergoes a substantive review at least once every five years of Power System Stabilizer (PSS) in the Western Electricity Coordinating Council (WECC) Entity footprint.
- Revisions
  - Updates to the document template, numbering, and template sections as provided by NERC
  - Removal of stale-dated verbiage included in the Effective Date
  - Removal of the redundant phrase, “[F]or auditing purposes..” From Measure M4
  - Updates to syntax
  - Correction of “[s]tandard” to “[S]tandard”
  - Correction of “dampen” to “damp” in the Rationale and Guidance section

Reliability Standard VAR-501-WECC-4

- Reliability Benefits
  - To ensure the Western Interconnection is operated in a coordinated manner under normal and abnormal conditions by establishing the performance criteria for power system stabilizers.
- Action
  - Adopt
    - Reliability Standard VAR-501-WECC-4 – Power System Stabilizer

Project 2020-04 Modifications to CIP-012

- Background
  - On January 23, 2020, the Federal Energy Regulatory Commission (FERC) issued Order No. 866 approving CIP-012-1 and directing NERC to develop modifications to CIP-012-1 to require Responsible Entities to develop one or more plan(s) to implement protections for the availability of communication links and data communicated between the Bulk Electric System (BES) Control Centers
- Revisions
  - Added “availability” in the “Purpose” statement to make sure the Real-time Assessment and Real-time monitoring data transmitted between Control Centers is protected
  - Modified Requirement R1 to make sure the Responsible Entity has plan(s) to protect loss of availability of data used in Real-time Assessment and Real-time monitoring

Project 2020-04 Modifications to CIP-012

- Reliability Benefits
  - To protect the communication links, the data, or both to mitigate the associated risks, consistent with the capabilities of the Responsible Entity's operational environment
- Action
  - Adopt
    - Reliability Standard - CIP-012-2 – Cyber Security – Communications between Control Centers

2024-2026 Reliability Standards Development Plan

- Status
  - Posted for industry comment from July 24 - August 22, 2023
  - Endorsed by Standards Committee on October 18, 2023
- Action
  - Approve the 2024-2026 Reliability Standards Development Plan

Questions and Answers

2024 NERC Work Plan Priorities

Action
Approve

Background
NERC's 2024 Business Plan and Budget (BP&B) was approved by the Board of Trustees (Board) in August 2023 and subsequently approved by the Federal Energy Regulatory Commission in October 2023. The 2024 BP&B includes activities and supporting investments for year two of NERC's three-year plan for 2023–2025, which includes four strategic areas of focus:

- **Energy**: Tackle the challenge of grid transformation and climate change-driven, extreme weather
- **Security**: Move the needle by focusing on supply chain, Information Technology (IT) and Operational Technology (OT) system monitoring, cyber design, and evolution of the Critical Infrastructure Protection (CIP) Standards
- **Agility**: Tool the company to be more nimble in key areas, particularly standards development, internal operational processes
- **Sustainability**: Invest in ERO systematic controls, eliminate single points of failure, strengthen succession planning, and ensure robust cyber security protections for all systems

Summary
NERC will present to the Board for approval the proposed 2024 Work Plan Priorities, which are NERC's goalpost for executing year two of the 2023–2025 plan as supported by the 2024 BP&B.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

2024 NERC Work Plan Priorities

Erika Chanzes, Manager of Business Planning
Board of Trustees Meeting
December 12, 2023

RELIABILITY | RESILIENCE | SECURITY




2023–2025 Plan Strategic Areas of Focus

Energy: Tackle the challenge of grid transformation and climate change-driven, extreme weather

Security: Move the needle by focusing on supply chain, Information Technology (IT) and Operational Technology (OT) system monitoring, cyber design, and evolution of the Critical Infrastructure Protection (CIP) Standards

Agility: Tool the company to be more nimble in key areas, particularly standards development, internal operational processes

Sustainability: Invest in ERO systematic controls, eliminate single points of failure, strengthen succession planning, and ensure robust cyber security protections for all systems

Background

- **NERC's 2024 Business Plan and Budget (BP&B) was approved by the Board of Trustees in August 2023**
  - The 2024 BP&B laid out the areas of focus and supporting investments for the 2024 budget year and 2025 projection, and provided a preliminary projection for 2026
- **The 2024 Workplan Priorities (WPPs) are NERC's goalpost for executing Year 2 of the 2023-2025 plan**
  - Reporting on the 2024 WPPs and the associated benefits of investments will be integrated throughout the year

2024 WPPs: Energy

Transfer Capability

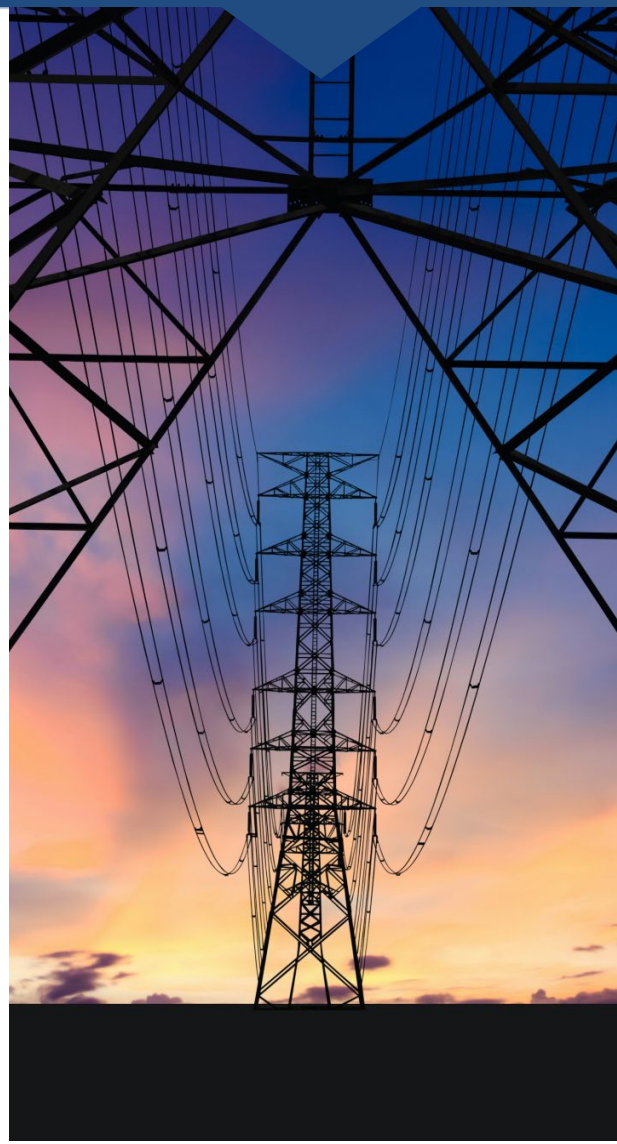
1. Conduct and deliver the congressionally mandated ITCS and integrate with the LTRA.

Extreme Weather

2. Adopt Reliability Standards that address extreme/cold weather and energy assurance, and implement the findings of Winter Storm Uri and Elliott inquiry recommendations.

Changing Resource Mix

3. Mitigate risks related to the changing resource mix through
    a. Reliability Standard modifications and registration activities for IBRs;
    b. Conducting studies on DER and DER aggregators; and
    c. Raising awareness of the impacts on the interconnected natural gas-electric systems from interdependencies and needed response, leveraging the joint NGSA/NERC/DOE gas-electric study, NAESB report recommendations, and Winter Storm Uri and Elliott inquiry recommendations.



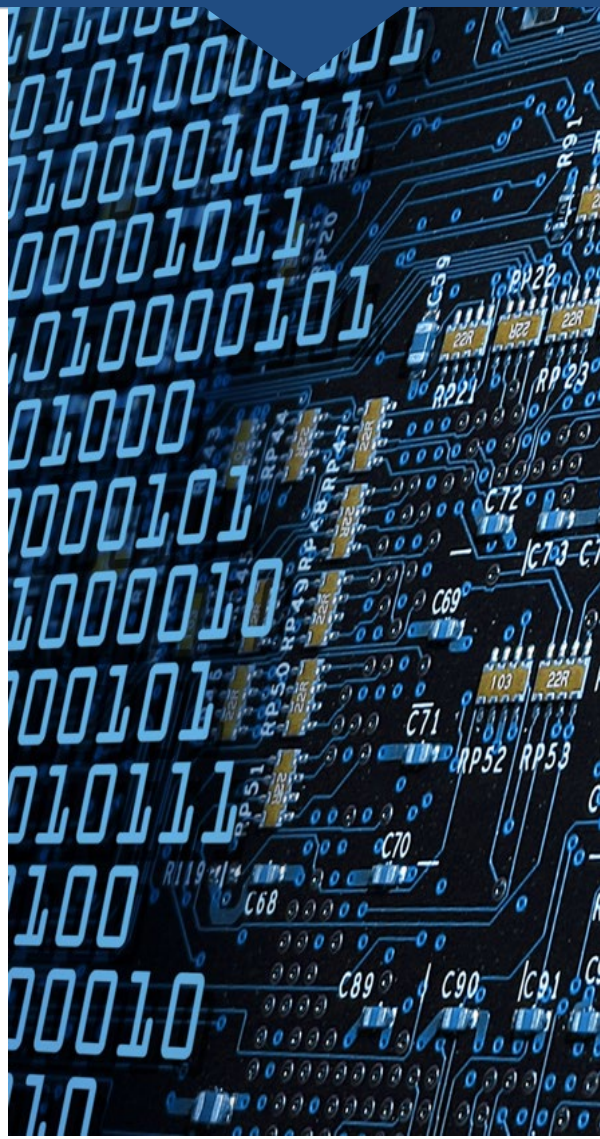
2024 WPPs: Security

Physical Security

4. Adopt modified physical security Reliability Standard.
5. Provide actionable physical security intelligence and risk mitigation measures, including emphasis on the U.S. election cycle, and conduct workshops on physical security incidents.

Cyber Security

6. Provide actionable cyber security intelligence and risk mitigation measures regarding geopolitical, criminal, and other threats targeting the electricity sector.
7. Develop plans for the continued enhancement of CRISP.
8. Strategically expand E-ISAC membership.
9. Complete analysis for cloud computing and develop a plan to address and enable appropriate use for BES assets.



2024 WPPs: Agility

Effectiveness and Efficiency

10. Develop recommendations for Registered Ballot Body criteria while maintaining fairness, openness, inclusivity, and balance in Reliability Standards voting.
11. Design a new website to improve the NERC.com user experience.

Communications and Stakeholder Relations

12. Broaden communication strategy and engagement to inform stakeholders about key initiatives and provide clarity and context on prioritization of NERC activities.
13. Support implementation efforts associated with the recommendations from the MRC effectiveness evaluation.

2024 WPPs: Sustainability

Talent Management

14. Establish a succession planning framework to strengthen leadership development and talent pipeline.

Technology

15. Implement a new RCIS and governance process.
16. Complete the next phase of system implementations to strengthen automation and controls across HR and Finance & Accounting.
17. Enhance security of existing and new solutions with Data Loss Prevention, monitoring, and response tools, while leveraging AI.

Questions and Answers

2023-2024 Winter Reliability Assessment Overview

Action
Review

Background
The NERC 2023-2024 Winter Reliability Assessment (WRA) identifies, assesses, and reports on areas of concern regarding the reliability of the North American bulk power system (BPS) for the upcoming winter season. In addition, the WRA presents peak electricity supply and demand changes, as well as highlights regional challenges and expected conditions that might impact the BPS. The reliability assessment process is a coordinated reliability evaluation between the Reliability Assessment Subcommittee (RAS), the Regional Entities, and NERC staff.

The final report reflects NERC's independent assessment and is aimed at informing industry leaders, planners and operators, as well as regulatory bodies so that they can be better prepared to take necessary actions to ensure BPS reliability. The report also provides an opportunity for the industry to discuss their plans and preparations for ensuring reliability throughout the upcoming winter period.

Pursuant to delegated authority from the Board of Trustees, NERC management approved the 2023-2024 Winter Reliability Assessment on November 8, 2023. NERC Staff will provide an overview of the report.

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2023-2024 Winter Reliability Assessment

John Moura, Director, Reliability Assessment and Performance Analysis
Stephen Coterillo, Engineer-II, Reliability Assessment
Board of Trustees Meeting
December 12, 2023

RELIABILITY | RESILIENCE | SECURITY

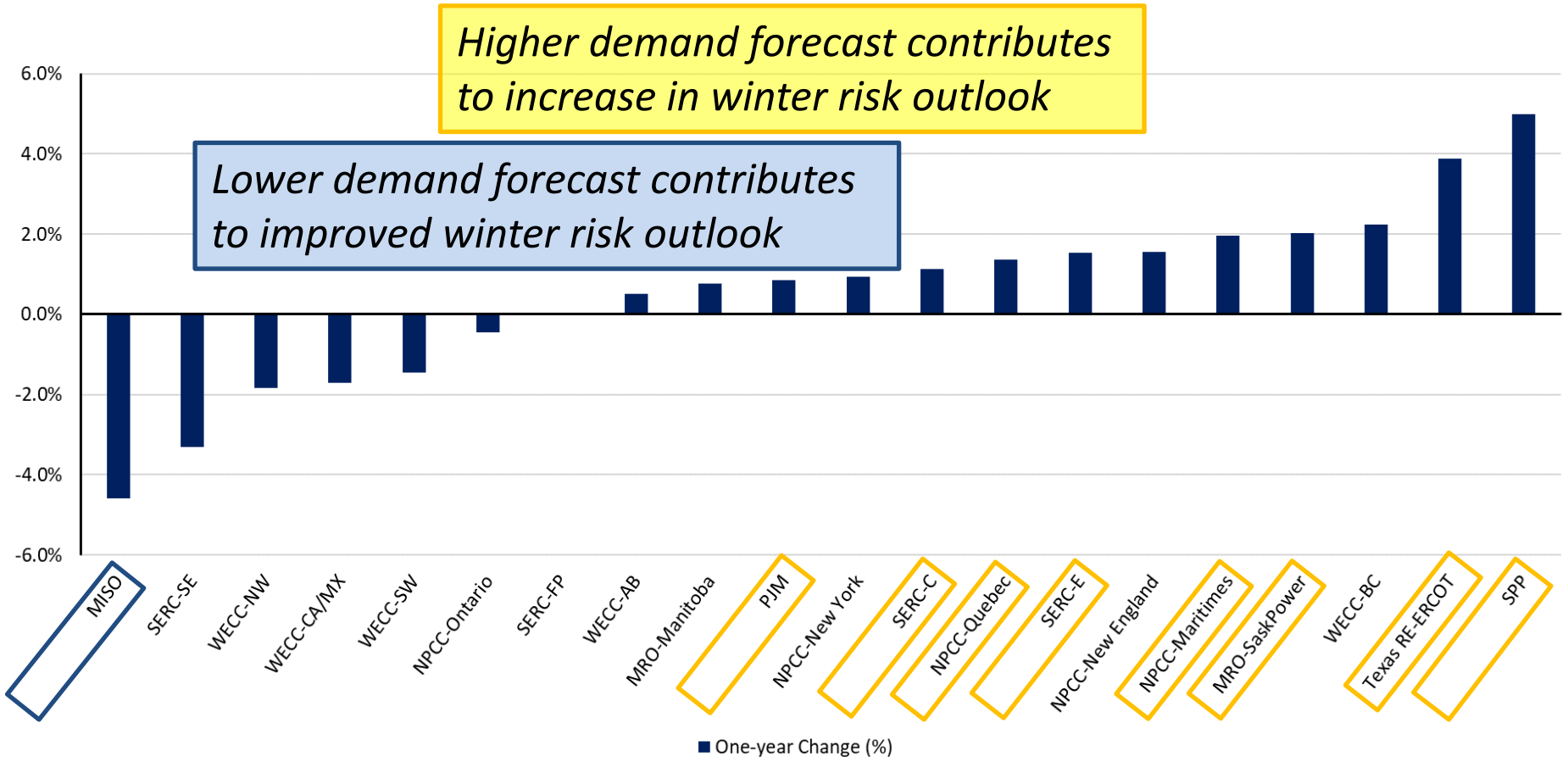



Key Takeaways

- A large portion of North America remains at risk of insufficient electricity supplies during peak winter conditions
- Factors contributing to reliability risks in affected areas include:
  - Higher peak-demand projections and more load forecasting complexity
  - Generator and fuel supply vulnerability to extreme weather
  - Interconnected natural gas and electric systems
- Industry cold weather preparations are on a positive trend but generators and fuel supplies in warmer zones are still likely to have performance issues in freezing temperatures

Winter Peak Demand Forecast Changes | Year-to-Year

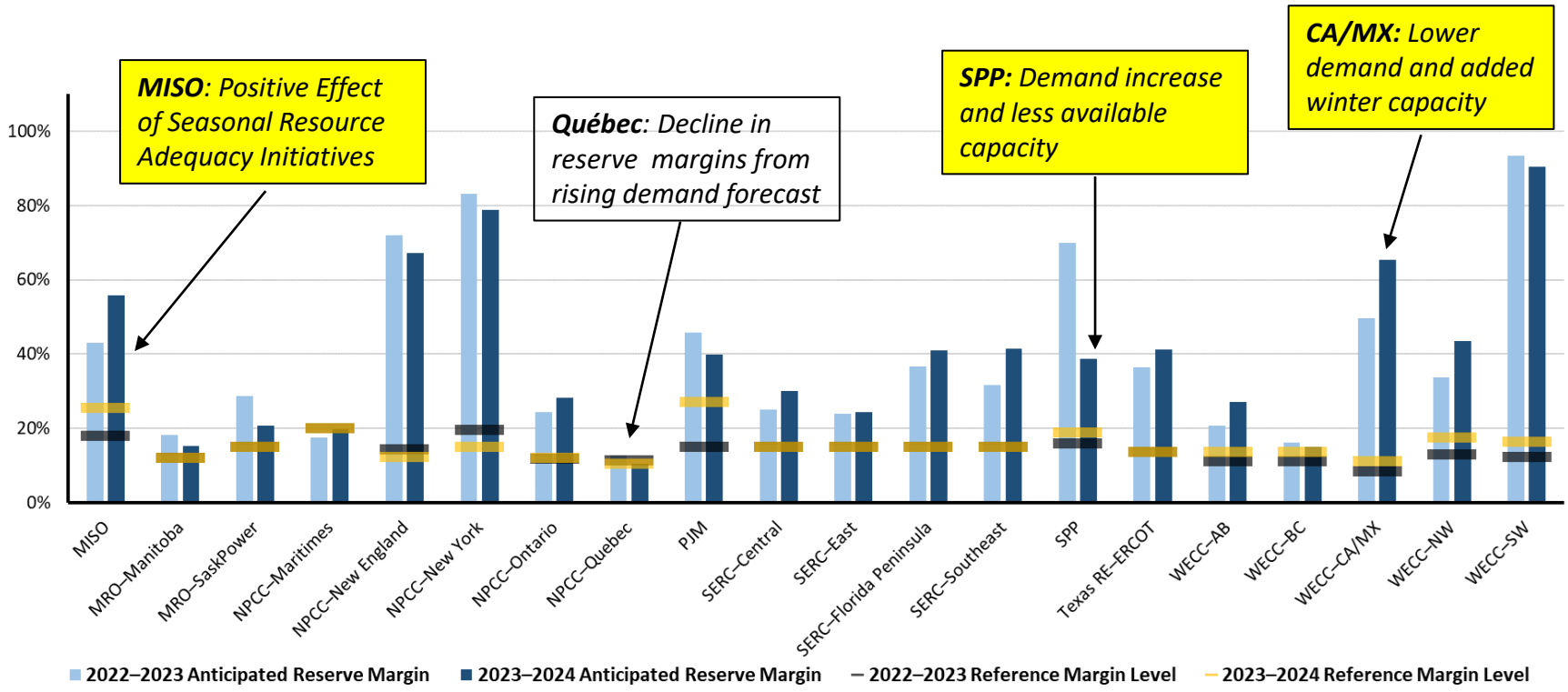
Demand forecasts contribute to reserve margins and risk profile



Areas where demand change is affecting WRA risk outlook

Reserve Margin Changes

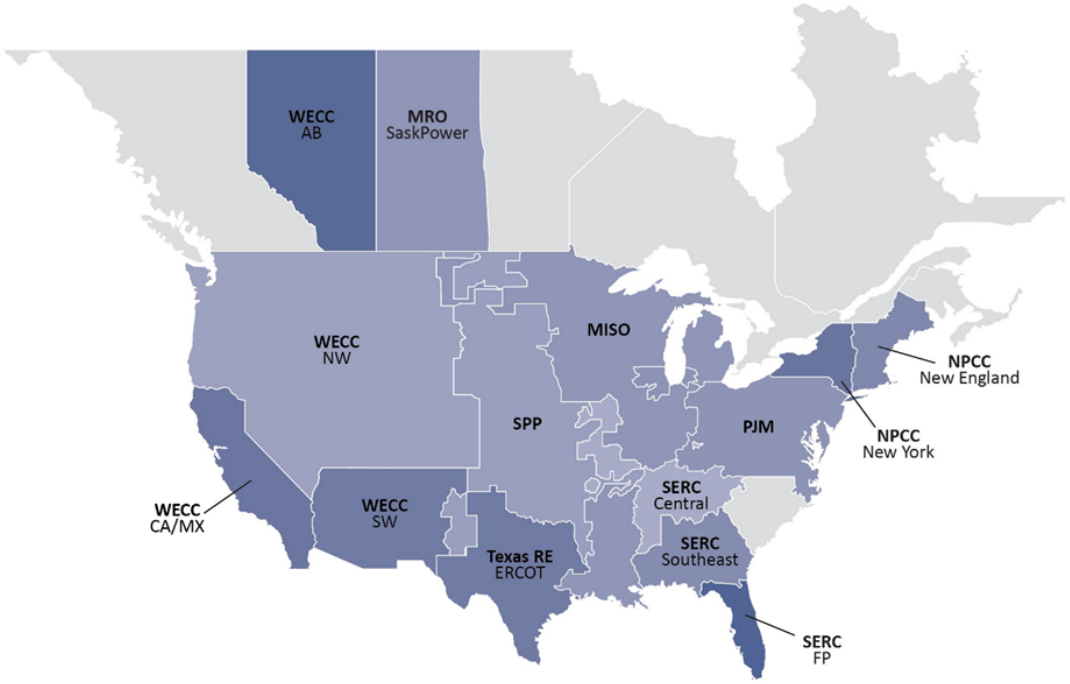
- Changes in available winter capacity are having a strong affect on reserve margins in MISO, SPP, and California-Mexico



Winter 2022–2023 and Winter 2023–2024 Anticipated Reserve Margins Year-to-Year Change

Interconnected Natural Gas and Electric Systems

- Natural gas fuel is essential for winter reliability
- Weather related generator and fuel system failures widen the reliability impact of extreme winter events



All other assessment areas have less than 35% natural gas fired generation contribution to winter resource mix.

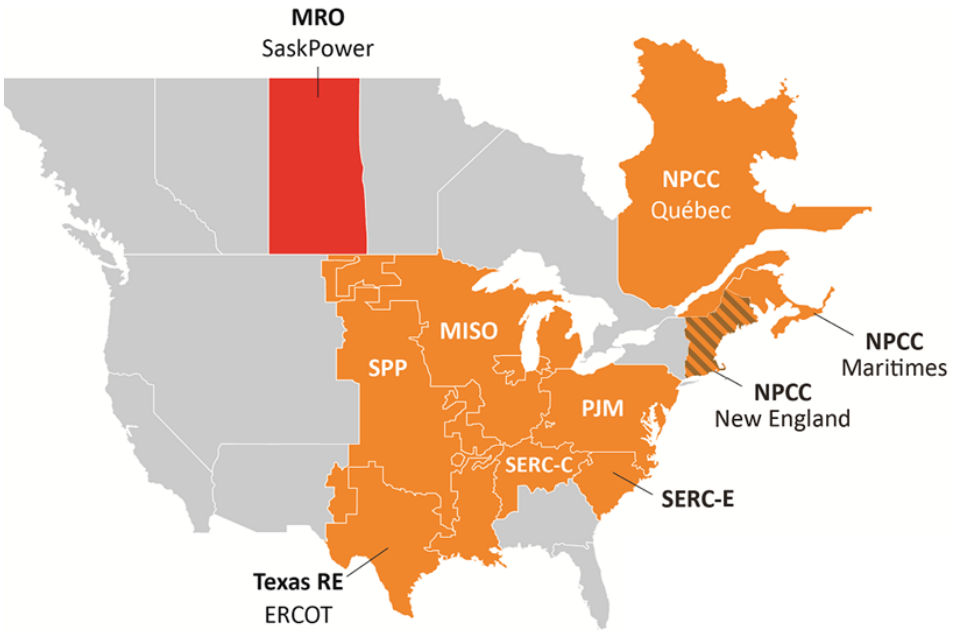
	Natural-Gas-Fired Generation	
	Peak Winter Capacity	Contribution to Total Winter Resource Mix
MISO	67.5 GW	46%
MRO-SaskPower	2.1 GW	46%
NPCC-New England	17.3 GW	54%
NPCC-New York	24.5 GW	66%
PJM	84.9 GW	47%
SERC-Central	22.7 GW	44%
SERC-Florida Peninsula	50.6 GW	79%
SERC-Southeast	31.5 GW	51%
SPP	27.4 GW	41%
Texas RE-ERCOT	54.2 GW	62%
WECC-AB	11.4 GW	75%
WECC-CA/MX	39.9 GW	65%
WECC-NW	31.0 GW	39%
WECC-SW	18.2 GW	62%

Natural-Gas-Fired Generation Capacity Contributions to 2023–2024 Winter Generation Mix

2023-2024 Winter Reliability Assessment Highlights

Wide area cold events threaten reliability

- Capacity and Energy Risk Assessment inputs
  - On-peak reserve margins
  - Operational risk analysis
  - Probabilistic energy metrics
- Generator availability assessed for extreme winter scenarios



2023-2024 Winter Reliability Risk Map

Seasonal Risk Assessment Summary	
High	Potential for insufficient operating reserves in normal peak conditions
Elevated	Potential for insufficient operating reserves in extreme conditions
Low	Sufficient operating reserves expected

Extreme conditions include 90/10 demand scenarios, historical high generator outage rates, and low variable energy resource scenarios

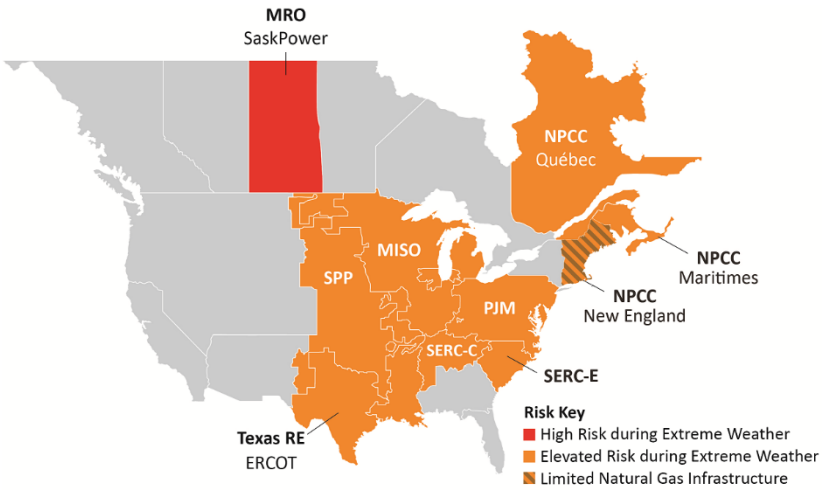
2023-2024 Winter Reliability Assessment Recommendations

- **Cold Weather Preparations** – Implement *Essential Actions* in NERC Level 3 Alert (May 2023) and winter operating plans
- **Fuel** –Reliability Coordinators and Balancing Authorities should implement fuel surveys and monitor fuel supply adequacy
- **Load Forecasting** – Anticipate potential for underestimating load in extreme cold and take early action to reduce the risk of reserve shortfall
- **State regulators and policy makers** – Support public appeal for reduced electricity and natural gas use and be prepared to handle requests for environmental and transportation waivers when needed for reliability

Questions and Answers

Winter Energy and Capacity Risk Summary

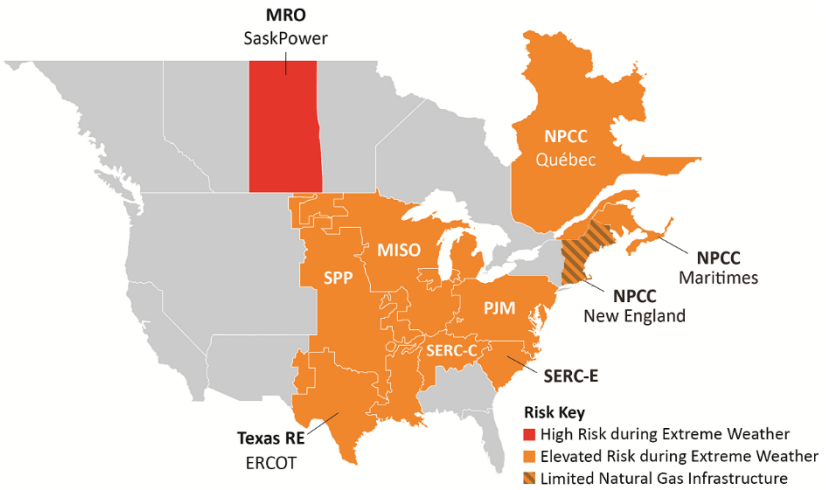
- MRO-SaskPower
  - Peak demand forecast, generator retirement and planned maintenance reduce reserve margin
  - Forced generator outages can cause supply shortfalls at peak winter demand
- NPCC-Québec and NPCC-Maritimes
  - Higher demand forecast reduces reserve margin
  - Non-firm imports are likely to be needed if demand levels exceed forecasted peak



Winter Reliability Risk Map

Winter Energy and Capacity Risk Summary

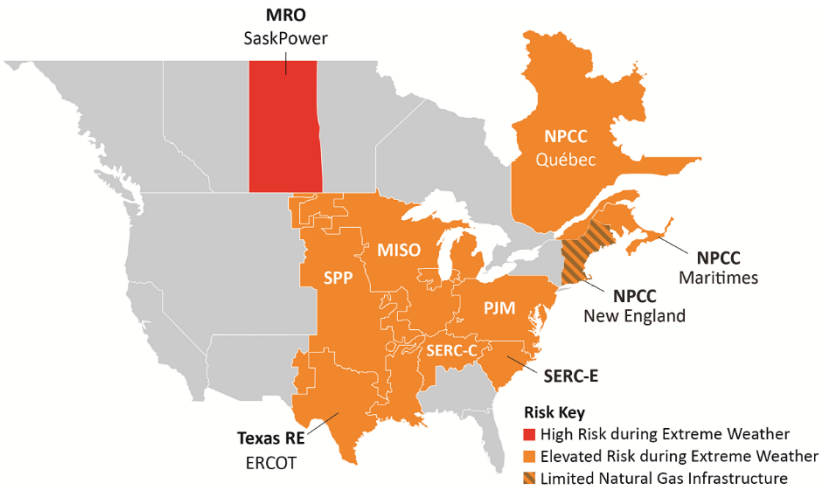
- PJM, SERC-East, and SERC-Central
  - Area resource capacities are same or lower compared to 2022
  - Generator outages on the scale of Winter Storm Elliott would result in energy emergencies
- NPCC-New England
  - Natural gas infrastructure insufficient for both electric generation and local-distribution in extreme cold
  - Stored fuels can be exhausted in long-duration winter weather conditions



Winter Reliability Risk Map

Winter Energy and Capacity Risk Summary

- Texas RE-ERCOT
  - Load growth strains available dispatchable resources
- SPP
  - Reserve margins are 30 percentage points lower than last winter
- MISO
  - New wind, natural-gas-fired generation & delayed retirements have increased available resources



Winter Reliability Risk Map

Extreme Cold Scenario

Reserve shortages result from low wind energy or generator performance and fuel issues

2023 Long-Term Reliability Assessment Overview

Action
Review

Background
The Long-Term Reliability Assessment (LTRA) is developed annually by NERC in accordance with the Electric Reliability Organization's (ERO) Rules of Procedure and Section 215 of the Federal Power Act, which instructs NERC to conduct periodic assessments of the North American bulk power system (BPS). The reliability assessment process is a coordinated reliability evaluation between the Reliability Assessment Subcommittee (RAS), the Regional Entities, and NERC staff. The scope of the LTRA includes the following:

- Review, assess, and report on the overall electric generation and transmission reliability (adequacy and operating reliability) of the interconnected BPS, both existing and as planned.
- Assess and report on the key issues, risks, and uncertainties that affect or have the potential to affect the reliability of existing and future electric supply and transmission.
- Review, analyze, and report on self-assessments of electric supply and bulk power transmission reliability, including reliability issues of specific Regional concern.
- Identify, analyze, and project trends in electric customer demand, supply, and transmission and their impacts on BPS reliability.
- Investigate, assess, and report on the potential impacts of new and evolving electricity market practices, new or proposed regulatory procedures, and new or proposed legislation (e.g. environmental requirements) on the adequacy and operating reliability of the BPS.

Summary
The electricity industry provided NERC with data and narrative information for the 10-year (2023-2033) assessment period so that the ERO can conduct its independent assessment of the long-term reliability of the North American BPS. NERC staff will provide an overview of the findings and recommendations contained in the 2023 LTRA and discuss long-term trends, emerging issues, and potential reliability risks. The embargoed LTRA report will be provided to the NERC Board of Trustees on November 29. The report will be published on December 13 following approval by NERC executive leadership.

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2023 Long-Term Reliability Assessment Overview

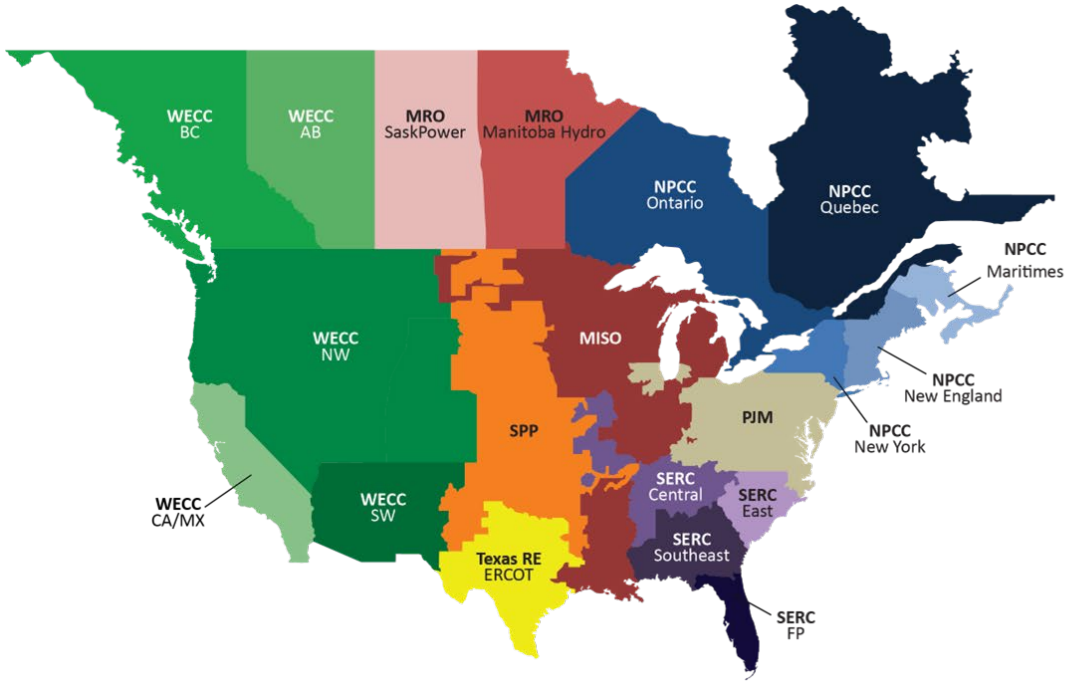
John Moura, Director, Reliability Assessment and Performance Analysis
Mark Olson, Manager, Reliability Assessment
Board of Trustees Meeting
December 12, 2023

RELIABILITY | RESILIENCE | SECURITY




Summary

- 10-year assessment of resource capacity and energy risks
- Uses industry's demand and generation forecasts and transmission projections
- Coordination and Review with Regions and Stakeholders
- Includes emerging issues that can impact future reliability
- **Publication: December 13**



MISO *(Midcontinent Independent System Operator)*
PJM

MRO – Midwest Reliability Organization
- MRO-Manitoba Hydro
- MRO-SaskPower
- SPP

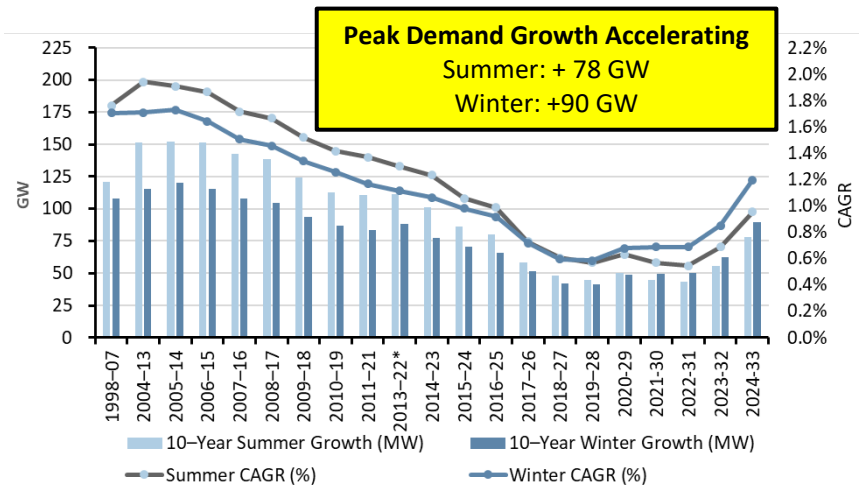
NPCC – Northeast Power Coordinating Council
- NPCC-Maritimes
- NPCC-New England
- NPCC-New York
- NPCC-Ontario
- NPCC-Québec

SERC – SERC Reliability Corporation
- SERC-East
- SERC-Central
- SERC-Southeast
- SERC-Florida Peninsula

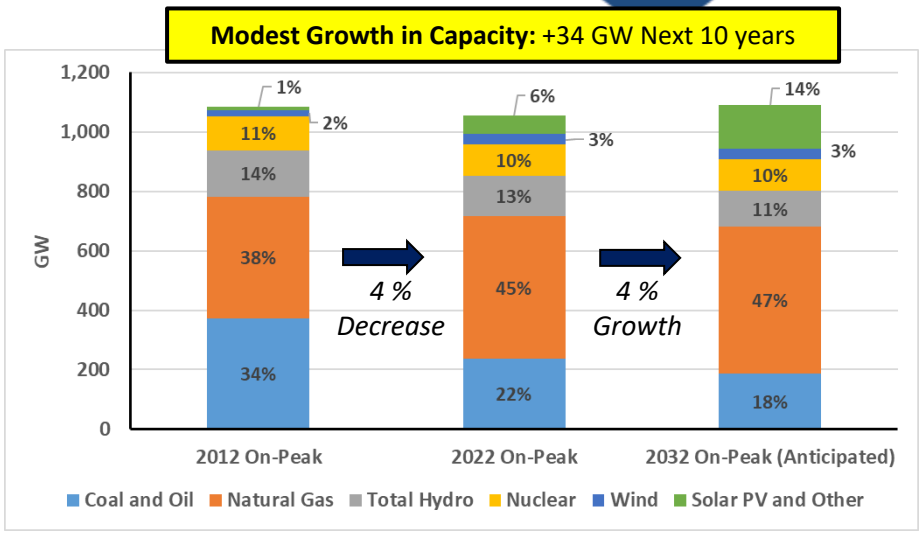
Texas RE – Texas Reliability Entity
- Texas RE-ERCOT *(Electric Reliability Council of Texas)*

WECC
- WECC-CA/MX *(California/Mexico)*
- WECC-AB *(Alberta)*
- WECC-BC *(British Colombia)*
- WECC-NW *(Northwest)*
- WECC-SW *(Southwest)*

Trend: Demand Growth Outpacing Resources



10-year Peak Demand Growth Projection



Generation On-Peak Capacity

Demand

- Highest demand and energy growth rates since 2010
- Northeast and Southeast become winter peaking as early as 2028
- New load behavior is changing daily load profile, challenges operational forecasting

Supply

- Total capacity growth of 34 GW over next 10 years (Tier 1 additions – retirements)
- Most additions are Solar (69 GW)
- Retirements: 83 GW through 2033
- New emissions regulations likely to prompt additional retirements

LTRA Risk Assessment Criteria

Resource capacity and energy risks are assessed for Years 1 – 5* in all assessment areas using the following criteria:

High Risk

- Supply shortfall can occur in **forecast conditions**
  - Historical peak demand and resource performance
- Indicators
  - Reserve margins fall below RML
  - Loss of Load Expectation (LOLE) exceed 1-day-in-10 years
- Extreme conditions are also likely to result in shortfall

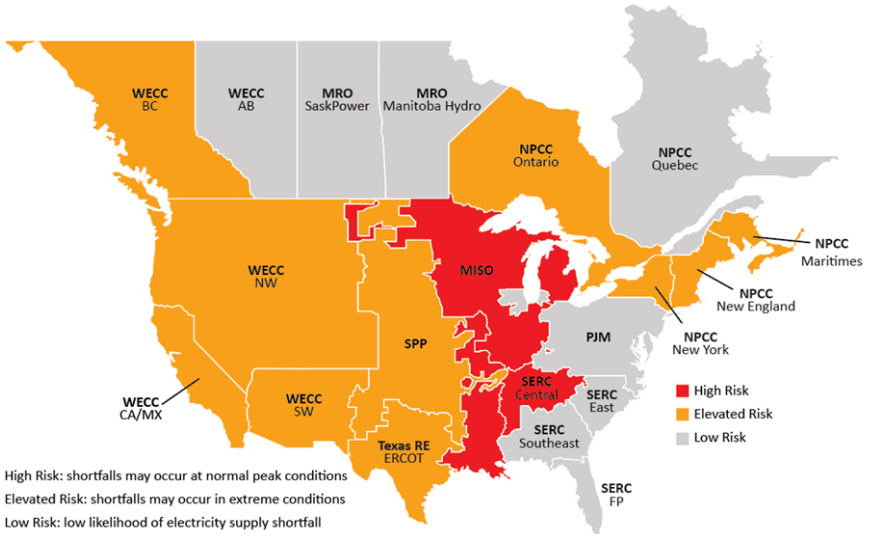
Elevated Risk

- Supply shortfalls are likely in **extreme conditions** only
  - Extreme high demand or abnormal low resource output
- Indicators
  - LOLE expected but less than 1-day-in-10 years
  - Unserved energy expected
  - Supply risks found in studies of extreme conditions

*Resource adequacy trends are reported for years 6 - 10

2023 LTRA Preliminary Findings

- **Growing number of areas face capacity and energy risks in the next 10 years**
  - Generator retirements expected before sufficient replacement resources will be in service
  - Energy risks identified in areas where future resource mix is not be balanced between dispatchable and variable energy resources
- Risk assessment accounts for over 80 GW in generator retirements

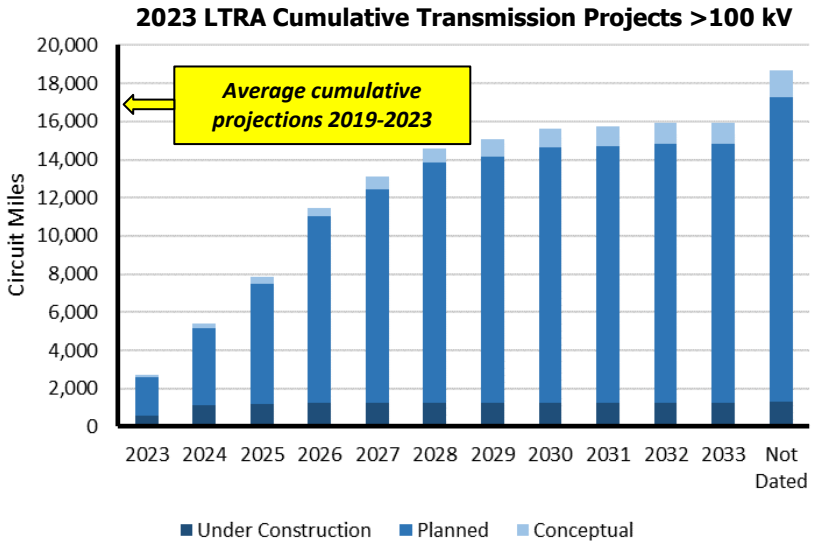


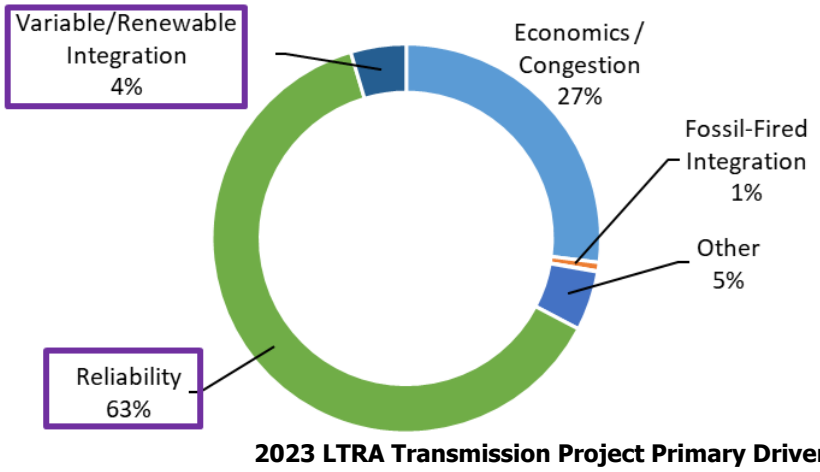
Risk Area Summary 2024-2028

High Risk – Shortfalls occurring in normal peak conditions
Elevated Risk – Shortfalls occurring in extreme conditions

Transmission Development Projections

- Projections for transmission development over the next 10-years are higher than past averages
- Siting and permitting challenges continue to inflict delays in transmission expansion planning
- **Positive trend in transmission development supports reliable resource mix transition**
- **ERO Reliability Assessments should evolve to evaluate transfer capability and benefits to reliability**





Emerging Issues

- Cryptocurrency mining is raising policy, market, operational, and planning issues in areas experiencing growth
- Growth in large industrial loads (data centers, smelters, manufacturing) can have implications for system reliability
  - Requires careful planning, operational coordination, and infrastructure
- Distribution transformer backlog and supply chain issues challenge storm restoration and response planning
- Planners have fewer blackstart resource options as current blackstart generators retire

Growing the Reliable BPS

1. Add new resources with needed reliability attributes, manage retirements, and make existing resources more dependable
2. Expand the transmission network to deliver supplies from new resources and locations to changing loads
3. Adapt BPS planning, operations, and resource procurement markets and processes for a more complex power system
4. Strengthen relationships among reliability stakeholders

Questions and Answers

NERC Alert Level 3 - Essential Actions to Industry

Action
Update

Background
NERC issued a level 3 Alert: Essential Actions for Cold Weather Preparations for Extreme Weather Events III to increase the Reliability Coordinators' (RC), Balancing Authorities' (BA), Transmission Operators' (TOP), and Generator Owners (GO) readiness and enhance plans for, and progress toward, mitigating risk for the upcoming winter and beyond.

The Alert was issued on May 15. 2023 and required registered entities to report their findings by October 6, 2023. The Alert consisted of 8 Essential Actions and required GOs, TOPs, and BAs, to answer 20 questions, 16 questions were directed at GOs, 2 questions, 1 ea. for TOPs, and 1 ea. for BAs. 2 questions were intended for all recipients. The questions where intended to increase readiness and gather information about the extent of condition around GO, TOP, BA, and RC current status, plans, and progress toward, mitigating risk for the upcoming winter and beyond.

NERC analyzed the alert responses to provide information on Key Elements, Key Findings, and the next steps. NERC will continue to address significant risks to Bulk Power System (BPS) reliability, ensuring that industry is well informed by providing unique and valuable information for asset owners and operators. Continuing to inform industry on preparations for extreme cold weather preparedness, NERC also developed an anonymized, public report of the key findings for this alert that was published on NERC.com.

Summary
This was the first Level 3 Alert issued by NERC and was issued to target critical risk and cold weather preparations for extreme weather events to reliability, pending implementation of revised Reliability Standards. To further address the impacts of Extreme Cold Weather, NERC developed Cold Weather Reliability Standards EOP-011-2, TOP-003-5, and IRO-010-4, which became effective on April 1, 2023. FERC recently approved the revised and new Cold Weather Reliability Standards EOP-011-3 and EOP-012-1, with EOP-012-1 to become effective October 1, 2024; NERC is currently developing revisions to the EOP-012 standard consistent with FERC's directives in the approval order. In addition, NERC recently filed for FERC approval for proposed Reliability Standards EOP-011-4 and TOP-002-5.

NERC analyzed the results and provided a report to FERC in accordance with the Rules of Procedure. The ERO will continue to analyze the data and provide outreach where needed to registered entities. NERC will coordinate with the regions on outreach to the registered entities. This outreach will include understanding what actions registered entities are taking to complete Essential Actions that were not completed, or are in the process of being completed, and follow up on any of the twenty questions as needed.

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NERC Alert III Update

Level 3 Alert Essential Actions to Industry

Darrell Moore, Director Situation Awareness and Personnel Certification/ Credential Maintenance, NERC

Board of Trustees Meeting

December 12, 2023

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Level 3 Alert Essential Actions to Industry

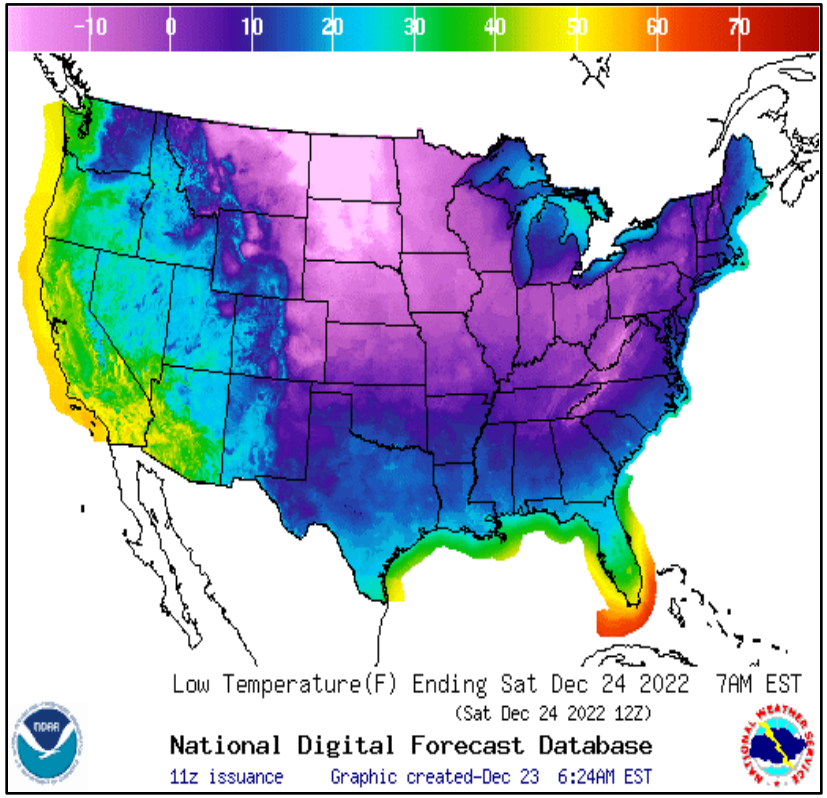
- The Alert required Generator Owners' (GO), Transmission Operators' (TOP), and Balancing Authorities (BA), to answer 20 questions
- 16 questions were directed at GOs
- 2 questions, 1 ea. for TOPs, and 1 ea. for BAs
- 2 questions were intended for all recipients
- The questions were intended to increase readiness and gather information about extent of condition around GO, TOP, BA, and RC current status, plans and progress toward mitigating risk for the upcoming winter and beyond

Key Elements

- Key elements in assessing the extent of condition included whether the GO had:
- Completed a study to determine its generator's Extreme Cold Weather Temperature (ECWT)
- Identified its Generator Cold Weather Critical Component (GCWCC).
- Determined which units are capable of operating at or below the ECWT.
- Identified which units experienced a Generator Cold Weather Reliability Event (GCWRE) in the prior winter and whether any corrective actions were taken.

Key Findings

- Responses indicated that freezing conditions remain a reliability issue for generators. Some of the concerns included improper heat trace, frozen instrumentation, frozen transmitters, control valves, lack of fuel supply, fuel jelling, blade icing, and breakers tripping caused by low temperature and low air pressure.



Key Findings

- The vase majority of GOs (96%) responded that they have calculated or will expect to calculate an ECWT for all their owned capacity. It is encouraging that entities had made efforts to determine the ECWT before the winter season. Also, an overwhelming majority of GOs responded that 91-100% of their capacity would be capable of operating at the ECWT. Based on limited follow up analysis, the 58 entities that reported that 0% of their capacity would be available at the ECWT appear to be mostly wind farms in this category. This is another encouraging sign with respect to generator preparedness.

Key Findings

- A relatively small number of GO entities (62) indicated in question GO-15 most of their capacity that experienced a cold weather reliability event in winter 2022-2023 were vulnerable to being impacted by the same cause in Winter 2023-2024 due to known issues that cannot or will not be mitigated. The vast majority of these entities were wind farms that listed some variant of blade icing as the cause of the prior event. Quantification of the risk presented by wind farms in winter months warrants additional investigation.
- Approximately 70% of both TOPs and BAs expect to have updated operating plans prior to Winter 2023-2024. While some (7% and 17% respectively) appear to have a valid reason for not doing so, the underlying reason why some TOPs and BAs are not updating operating plans warrants additional investigation.

Next Steps

- NERC will continue to address significant risks to BPS reliability, ensuring that industry is well informed by providing unique and valuable information for asset owners and operators.
- To help inform industry of extent of conditions for preparations for extreme cold weather preparedness, NERC developed an anonymized, public report of the key findings.
- The ERO Enterprise resumed their winter collaboration meetings to gather and share information, best practices, and lessons learned for outreach on the level III alert responses and data.

Questions and Answers