

Agenda

Board of Trustees

August 12, 2021 | 2:00-5:00 p.m. Eastern

Virtual Meeting

Attendee Webex Link: [Join Meeting](#)

Call to Order

NERC Antitrust Compliance Guidelines*

Introduction and Chair's Remarks

Consent Agenda – Approve

1. Minutes*

- a. June 11, 2021 Meeting
- b. May 13, 2021 Meeting

2. Committee Membership and Charter Amendments*

- a. Personnel Certification Governance Committee Proposed Charter Amendments
- b. Procedure for Selection of Members to the Compliance and Certification Committee
- c. MRO Regional Reliability Standards Process Manual

Regular Agenda

3. Remarks and Reports

- a. Welcome Remarks by Andre Bernier, Acting Associate Deputy Minister, NRCan
- b. Remarks by Allison Clements, Commissioner, FERC
- c. Remarks by Patricia Hoffman, Acting Assistant Secretary, Office of Electricity, DOE
- d. Remarks by David Morton, CAMPUT Representative to NERC
- e. Remarks by Francis Bradley, President & CEO, CEA
- f. President's Report
- g. Report on the July 7 and August 11, 2021 Closed Meetings

4. Board Committee Reports

- a. Corporate Governance and Human Resources
- b. Compliance

- c. Finance and Audit
 - i. Second Quarter Statement of Activities - **Accept**
 - ii. NERC and Regional Entity Proposed 2022 Business Plans and Budgets and Associated Assessments – **Approve**
- d. Enterprise-wide Risk
- e. Technology and Security
- f. Nominating
- g. Report by Jim Piro on Standards and RSTC Quarterly Activities

5. Standards Quarterly Report and Actions*

- a. Project 2019-02 BES Cyber System Information Access Management - **Adopt**
- b. Proposed Revisions to the NERC Rules of Procedure – Section 300, Appendices 3B and 3D – **Approve**
- c. Standards Efficiency Review Update - **Information**
- d. Critical Infrastructure Protection Board Resolution Updates – **Information**

BREAK – 15 MINS

6. Other Matters and Reports

- a. Policy Input and Member Representatives Committee Meeting – **Discussion**
- b. 2021 State of Reliability Report* – **Accept**
- c. 2021 ERO Reliability Risk Priorities Report* – **Accept**
- d. Semi-annual Review of the Achievements of the 2021 ERO Enterprise Work Plan Priorities* – **Update**
- e. 2021 ERO Enterprise Reliability Indicators* – **Update**

7. Committee Reports

- a. Member Representatives Committee
- b. Personnel Certification Governance Committee*
- c. Standards Committee*
- d. Compliance and Certification Committee*
- e. Reliability and Security Technical Committee*
- f. Reliability Issues Steering Committee*
- g. Electricity Subsector Coordinating Council

8. Forum and Group Reports

- a. North American Energy Standards Board
- b. North American Transmission Forum*
- c. North American Generator Forum*

9. Other Matters and Adjournment

*Background materials included.

Antitrust Compliance Guidelines

I. General

It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition.

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

Antitrust laws are complex and subject to court interpretation that can vary over time and from one court to another. The purpose of these guidelines is to alert NERC participants and employees to potential antitrust problems and to set forth policies to be followed with respect to activities that may involve antitrust considerations. In some instances, the NERC policy contained in these guidelines is stricter than the applicable antitrust laws. Any NERC participant or employee who is uncertain about the legal ramifications of a particular course of conduct or who has doubts or concerns about whether NERC's antitrust compliance policy is implicated in any situation should consult NERC's General Counsel immediately.

II. Prohibited Activities

Participants in NERC activities (including those of its committees and subgroups) should refrain from the following when acting in their capacity as participants in NERC activities (e.g., at NERC meetings, conference calls and in informal discussions):

- Discussions involving pricing information, especially margin (profit) and internal cost information and participants' expectations as to their future prices or internal costs.
- Discussions of a participant's marketing strategies.
- Discussions regarding how customers and geographical areas are to be divided among competitors.
- Discussions concerning the exclusion of competitors from markets.
- Discussions concerning boycotting or group refusals to deal with competitors, vendors or suppliers.

- Any other matters that do not clearly fall within these guidelines should be reviewed with NERC's General Counsel before being discussed.

III. Activities That Are Permitted

From time to time decisions or actions of NERC (including those of its committees and subgroups) may have a negative impact on particular entities and thus in that sense adversely impact competition. Decisions and actions by NERC (including its committees and subgroups) should only be undertaken for the purpose of promoting and maintaining the reliability and adequacy of the bulk power system. If you do not have a legitimate purpose consistent with this objective for discussing a matter, please refrain from discussing the matter during NERC meetings and in other NERC-related communications.

You should also ensure that NERC procedures, including those set forth in NERC's Certificate of Incorporation, Bylaws, and Rules of Procedure are followed in conducting NERC business.

In addition, all discussions in NERC meetings and other NERC-related communications should be within the scope of the mandate for or assignment to the particular NERC committee or subgroup, as well as within the scope of the published agenda for the meeting.

No decisions should be made nor any actions taken in NERC activities for the purpose of giving an industry participant or group of participants a competitive advantage over other participants. In particular, decisions with respect to setting, revising, or assessing compliance with NERC reliability standards should not be influenced by anti-competitive motivations.

Subject to the foregoing restrictions, participants in NERC activities may discuss:

- Reliability matters relating to the bulk power system, including operation and planning matters such as establishing or revising reliability standards, special operating procedures, operating transfer capabilities, and plans for new facilities.
- Matters relating to the impact of reliability standards for the bulk power system on electricity markets, and the impact of electricity market operations on the reliability of the bulk power system.
- Proposed filings or other communications with state or federal regulatory authorities or other governmental entities.
- Matters relating to the internal governance, management and operation of NERC, such as nominations for vacant committee positions, budgeting and assessments, and employment matters; and procedural matters such as planning and scheduling meetings.

DRAFT Minutes Board of Trustees

June 11, 2021 | 2:00 – 2:30 p.m. Eastern
WebEx

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 June 11, 2021, at 2:00 p.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
Robert G. Clarke, Vice Chair
Jane Allen
George S. Hawkins
Larry Irving
Suzanne Keenan
Susan Kelly
Robin E. Manning
Jim Piro
James B. Robb, NERC President and Chief Executive Officer
Colleen Sidford
Roy Thilly

NERC Staff

Tina Buzzard, Assistant Corporate Secretary
Manny Cancel, Senior Vice President and Chief Executive Officer of the E-ISAC
Howard Gugel, Vice President, Engineering and Standards
Kelly Hanson, Senior Vice President, Chief Administrative Officer
Mark Lauby, Senior Vice President and Chief Engineer
Sonia Mendonça, Senior Vice President, General Counsel, and Corporate Secretary
Lauren Perotti, Senior 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. Mendonça.

Introduction and Chair’s Remarks

Mr. DeFontes welcomed the attendees to the meeting and noted that the purpose of the meeting is to consider adoption of the proposed Project 2019-06 Cold Weather Reliability Standards.

Project 2019-06 Cold Weather

Mr. Gugel presented the proposed Reliability Standards developed through Project 2019-06 Cold Weather, referencing the material included in the advance agenda package. Mr. Gugel stated that the standards were developed to address the recommendations of the July 2019 Federal Energy Regulatory Commission (“FERC”)/NERC Staff Report on the January 17, 2018 cold weather event. He reviewed the proposed requirements for cold weather preparedness plans, training, and data exchange. Mr. Gugel reported that NERC staff is presently considering additional measures to help support the reliability of the Bulk-Power System during the cold weather seasons that elapse before the proposed standards become mandatory and enforceable. He also noted that any recommendations for further standards modifications that arise from the joint FERC/NERC inquiry of the February 2021 cold weather event would be addressed promptly.

Mr. DeFontes thanked NERC staff, the standard drafting team, and NERC’s stakeholders for their work to address this important reliability matter. Mr. Thilly requested that NERC staff continue to keep the Board apprised of any further standards development that may be necessary to address the findings of the February 2021 joint inquiry. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

Proposed Reliability Standard EOP-011-2

RESOLVED, that the Board hereby adopts the proposed Reliability Standard EOP-011-2, 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-011-1, as presented to the Board at this meeting.

Proposed Reliability Standard IRO-010-4

RESOLVED, that the Board hereby adopts the proposed Reliability Standard IRO-010-4, 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 IRO-010-3, as presented to the Board at this meeting.

Proposed Reliability Standard TOP-003-5

RESOLVED, that the Board hereby adopts the proposed Reliability Standard TOP-003-5, 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-003-4, as presented to the Board at this meeting.

Implementation Plan

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

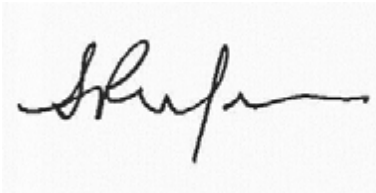
Authorization

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.

Adjournment

There being no further business, and upon motion duly made and seconded, the meeting was adjourned.

Submitted by,

A handwritten signature in black ink, appearing to read 'Sônia Mendonça', is written over a light gray rectangular background.

Sônia Mendonça
Corporate Secretary

DRAFT Minutes Board of Trustees

May 13, 2021 | 2:00 – 5:00 p.m. Eastern
WebEx

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 May 13, 2021, at 2:00 p.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
Robert G. Clarke, Vice Chair
Jane Allen
George S. Hawkins
Larry Irving
Suzanne Keenan
Susan Kelly
Robin E. Manning
Jim Piro
James B. Robb, NERC President and Chief Executive Officer
Colleen Sidford
Roy Thilly

NERC Staff

Tina Buzzard, Assistant Corporate Secretary
Manny Cancel, Senior Vice President and Chief Executive Officer of the E-ISAC
Shamai Elstein, Assistant General Counsel
Howard Gugel, Vice President, Engineering and Standards
Kelly Hanson, Senior Vice President, Chief Administrative Officer
Stan Hoptroff, Vice President, Business Technology
Nina Jenkins-Johnston, Assistant General Counsel
Soo Jin Kim, Director, Power Risk Issues Management
Mark Lauby, Senior Vice President and Chief Engineer
Sonia Mendonça, Senior Vice President, General Counsel, and Corporate Secretary
John Moura, Director, Reliability Assessment and Technical Committees
Steven Noess, Director, Regulatory Programs
Mark Olson, Manager, Reliability Assessments
Lauren Perotti, Senior Counsel
Donna Pratt, Performance Analysis Manager
Janet Sena, Senior Vice President, External Affairs
Andy Sharp, Vice President and Chief Financial Officer
Teresina Stasko, Assistant General Counsel and Director of Enforcement

Mechelle Thomas, Vice President, Compliance

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. Mendonça.

Introduction and Chair's Remarks

Mr. DeFontes welcomed all of the attendees to the meeting, including Mr. Nick Akins, Chief Executive Officer, American Electric Power; Commissioner James Danly from the Federal Energy Regulatory Commission ("FERC"), Ms. Patricia Hoffman, Acting Assistant Secretary, Office of Electricity, Department of Energy, and Mr. David Morton, CAMPUT. Mr. DeFontes expressed the Board's appreciation to Carol Chinn for her service to NERC and congratulated her on her upcoming retirement. He also noted that the August Board meetings would be held virtually in light of the continuing COVID-19 pandemic.

Consent Agenda

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

Minutes

The draft minutes for the February 4, 2021 meeting were approved as presented to the Board at this meeting.

Committee Membership and Charter Amendments

Personnel Certification Governance Committee Membership

RESOLVED, that the Board hereby appoints Michael Sandidge (PG&E) to the Personnel Certification Governance Committee, for a two year term ending May 2023.

Regular Agenda

Remarks by Nick Akins, Chief Executive Officer, American Electric Power

Mr. Robb introduced Mr. Akins of American Electric Power (AEP). Mr. Akins highlighted the importance of NERC's work to the reliability, resiliency, and security of the grid. He noted the impacts of recent events on energy infrastructure and the country at large. Mr. Akins emphasized the need for industry, NERC, and the governmental authorities to work together to understand the challenges of the transforming electric grid and to take action to address those risks that can impact resiliency and reliability. He also summarized some of the steps AEP has been taking to address these risks.

Remarks by James Danly, Commissioner, FERC

Mr. Robb introduced Commissioner Danly of FERC. Commissioner Danly encouraged NERC to continue to be as aggressive and proactive as possible in developing and enforcing the Reliability Standards that are needed to ensure the functioning of the bulk-power system. He stated that NERC's primary role as the Electric Reliability Organization is to develop and enforce Reliability Standards, and he emphasized the importance of that role as the grid undergoes rapid transformation. Mr. Danly noted that FERC, with its market authority, and NERC, with its Reliability Standards authority, both play important roles in advancing an adequate and reliable grid.

Remarks by Patricia Hoffman, Acting Assistant Secretary, Office of Electricity, DOE

Mr. DeFontes introduced Ms. Hoffman of the Department of Energy. Ms. Hoffman remarked on several focus areas, including: (i) the Biden Administration's clean energy goals, and the need for significant infrastructure investments

to accomplish these goals; (ii) continued examination of resiliency and natural gas/electric interdependency issues; and (iii) continued attention to cyber security considerations, including examination of data and communication networks and other areas.

Remarks by David Morton, CAMPUT Representative to NERC

Mr. Robb introduced Mr. Morton, CAMPUT Representative to NERC. Mr. Morton commended NERC on the rollout of the Align system and thanked NERC for its engagement with the Canadian authorities on this project. He encouraged NERC to continue developing mandatory Reliability Standards when needed to address reliability risks. Mr. Morton offered CAMPUT's assistance in preparing for cold weather, expressed his interest in the results of the FERC/NERC staff joint inquiry on the February 2021 cold weather event, and noted his support for NERC's efforts to examine the issues surrounding the interdependence of the electric and natural gas systems.

Report on the March 15, April 22, May 10 and May 12, 2021 Closed Meetings

Mr. DeFontes reported that on March 15, April 22, May 10, and on May 12 (as is its custom), the Board met in closed session with NERC management to review NERC management activities. In these sessions, the Board discussed the Board's oversight role of Reliability Standards, the role of the Compliance and Certification Committee, and the 2021 Work Plan Priorities. On May 12, the Board discussed the Board's resolutions for this meeting, policy input, Reliability Standards proposed for adoption, the recent pipeline cyber attack. The Board also discussed human resource matters and legal issues.

President's Report

Mr. Robb provided the president's report, highlighting the increased challenges posed by the transforming electric grid in the areas of planning, operations, and cyber security. He noted several extraordinary events in recent months, including weather events affecting California and Texas and middle south United States and several notable supply chain compromises. Mr. Robb emphasized the need to be sensitive to the challenges of the transforming grid and highlighted that NERC's 2021 Summer Reliability Assessment shows elevated reliability risk in several areas of the United States. He concluded his report by noting the need to reconsider the regulatory framework for natural gas, so that system is as reliable and secure as the electric grid that increasingly relies on it.

Mr. Robb also congratulated former NERC vice president Tim Roxey upon his receipt of lifetime achievement award from the SANS Institute.

Mr. Robb then introduced Ms. Sara Patrick, President and CEO of the Midwest Reliability Organization (MRO) and co-chair of the ERO Enterprise Executive Committee, to provide additional comments. Ms. Patrick congratulated Ed Schwerdt, former President and CEO of Northeast Power Coordinating Council (NPCC), on his recent retirement, and she welcomed the new NPCC CEO Charles Dickerson to the ERO Enterprise. Ms. Patrick remarked on the recent implementation of the Align program and Secure Evidence Locker and noted how the ERO Enterprise's focus on enhanced collaboration across the organization played a significant role in the successful development and deployment of these programs.

2021 Summer Reliability Assessment Preview

Mr. DeFontes introduced the 2021 Summer Reliability Assessment preview, noting that, due to the importance of its findings, the topic would be addressed earlier in the agenda than originally noted.

Mr. Moura provided an overview of the history of the NERC Summer Reliability Assessment and a summary of recent improvements.

Mr. Olson provided an overview of the preliminary findings. He noted that higher temperatures are predicted for summer 2021 which may contribute to higher peak demand conditions. Mr. Olson highlighted elevated reliability risks in the WECC Southwest Reserve Sharing Group, Texas Regional Entity/ERCOT, Midwest Independent System

Operator, and NPCC New England regions under extreme load conditions and high reliability risks in the WECC California/Mexico region. He summarized the shortfalls that may occur during extreme demand scenarios. Mr. Olson also reported that wildfire risks are projected to above normal for 2021 in many areas and noted that such events could affect reliability.

The Board discussed the preliminary findings. Mr. Moura noted steps the states could take to help address potential resource constraint issues in the short term, such as increasing demand response, deploying solar resources, bringing mothballed plants back into operation, and delaying the retirement of other plants. Mr. Robb remarked on the role demand response can play in addressing short-term emergencies and the merits of placing non-operating plants in “cold standby” so they can be restarted on short notice.

Board Committee Reports

Corporate Governance and Human Resources

Mr. Hawkins, Committee Chair, reported on the closed meetings on March 15, 2021, April 22, 2021 and May 4, 2021. At the closed meetings, the Committee issued a request for proposals to conduct a trustee compensation study, selected Meridian Compensation Partners to conduct the study, met in closed session with Meridian, and addressed human resources issues. At the Committee's open meeting on May 12, 2021, the Committee reviewed and approved revisions to the Governance Guidelines, reviewed the Committee self-assessment survey results, and received an update on staffing and recruitment. Mr. Hawkins presented the proposed amendments to the Governance Guidelines to the Board. Upon motion duly made and seconded, the Board approved the following resolution:

RESOLVED, that the Board, upon recommendation of the Corporate Governance and Human Resources Committee, hereby approves the proposed amendments to the NERC Governance Guidelines, as presented to the Board at this meeting.

Compliance

Mr. Manning, Committee Chair, reported on the Committee's closed meetings on May 11, 2021 and March 15, 2021. At the March 15, 2021 closed meeting, the Committee discussed a restructuring of the Committee's oversight of the ERO Enterprise Compliance Monitoring and Enforcement Program (CMEP), approved a revised delegation of authority to staff for resolving Full Notices of Penalty (subject to briefing the Committee on certain cases), and received updates on cases. At the May 11, 2021 meeting, Committee received updates on the Align and Secure Evidence Locker implementation, discussed significant CMEP activities, discussed the CMEP lifecycle from the Compliance Oversight Plan to resolution of potential noncompliance, received updates on proposed revisions to the NERC Rules of Procedure regarding the CMEP and agreed to recommend approval of the proposed revisions to the full Board of Trustees, and reviewed the Committee self-assessment results.

Finance and Audit

Mr. Clarke, Committee Chair, reported on the April 22, 2021 closed, May 11, 2021 closed, and May 12, 2021 open meetings of the Committee. At the May 12 open meeting, the Committee reviewed and recommended several items for Board approval. First, Mr. Clarke reported that the Committee reviewed and recommended the 2020 Financial Statement Audit Results. 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 2020 Audited Financial Statements, as presented to the Board at this meeting.

Second, Mr. Clarke reported that the Committee reviewed and recommended the First Quarter Statement of Activities. 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 First Quarter 2021 NERC, Combined ERO Enterprise, and Regional Entity Unaudited Statement of Activities, as presented to the Board at this meeting.

Third, and lastly, Mr. Clarke reported that the Committee reviewed and recommended the renewal of the line of credit. Upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board, upon recommendation of the Finance and Audit Committee, hereby approves the renewal of the line of credit.

FURTHER RESOLVED, that NERC management is hereby authorized to take such actions as are necessary to finalize and execute the line of credit renewal documentation, consistent with the foregoing resolution.

FURTHER RESOLVED, that the Board authorizes NERC management to proceed to take such actions as are necessary to execute the line of credit renewal documentation on an annual basis, so long as the material terms of the renewal remain substantially the same.

Mr. Clarke reported that, at the closed meetings, the Committee met with NERC's external and internal auditors as well as general counsel, received an update from internal audit, and reviewed NERC's retirement plans documents and the cash investment performance and investment policy statement.

Enterprise-wide Risk

Ms. Sidford, Committee Chair, reported on the Committee's closed meeting on May 4, 2021. At its meeting, the Committee welcomed the incoming NERC Director of Corporate Risk Management and Corporate Compliance. The Committee also received updates on the activities of the Compliance and Certification Committee, Regional Entity activities, 2021 audit plan status, and the results of an Enterprise Risk Management diagnostic study performed by a third party consultant. The Committee also reviewed the results of the Committee self-assessment survey.

Technology and Security

Ms. Keenan, Committee Chair, reported on the Committee's closed meeting on May 10, 2021, noting that the Committee received updates on the E-ISAC and the ERO Enterprise cyber security posture. Ms. Keenan also reported that the Committee met in open session on May 12, 2021, where it received updates on E-ISAC operations, the Align project, and other ERO Enterprise technology projects. She highlighted the upcoming virtual GridSecCon event, to take place from October 18-20, 2021, and the upcoming virtual GridEx event, to take place from November 16-18, 2021. Ms. Keenan commended the efforts of E-ISAC staff to assist industry during the multiple supply chain events that occurred over the past year. She encouraged stakeholders to respond to the upcoming E-ISAC stakeholder feedback survey.

Nominating

Mr. Thilly, Committee Chair, reported that the Committee met in closed session on March 16, 2021. He reported that the Committee confirmed that all four incumbent Trustees whose terms are ending are eligible and interested in serving another term, and that, upon consultation with the Member Representatives Committee (MRC), the Nominating Committee will not conduct an outside search for additional Trustee nominations. Mr. Thilly reported that the Committee would meet again in November to make its formal recommendation to the MRC to re-nominate the four Trustees.

Report by Jim Piro on Standards and RSTC Quarterly Activities

Mr. Piro, Liaison to the Standards Committee and Reliability and Security Technical Committee (RSTC), reported on recent Standards Committee activities, including actions taken at its meetings to authorize postings and accept several Standard Authorization Requests submitted by the RSTC.

He also reported that the participation and engagement on the RSTC continues to remain high and highlighted its work to address grid transformation, extreme events, and natural gas interdependence.

Standards Quarterly Report and Actions

Project 2015-09 Establish and Communicate System Operating Limits

Mr. Gugel presented the proposed Reliability Standards and definitions developed through Project 2015-09 Establish and Communicate System Operating Limits, referencing the material included in the advance agenda package. Mr. Gugel reported that NERC staff is continuing to examine whether conforming changes to other standards not included in this project are needed, in light of the changes to the broader framework for determining System Operating Limits developed thorough this project. Mr. Thilly highlighted the need to examine the CIP-002 and CIP-014 standards in particular for conforming changes, and noted the Board's decision to direct staff to study the issue in the interest of prudence and report back to the Board. Upon motion duly made and seconded, the Board approved the following resolutions:

Proposed Reliability Standard FAC-011-4

RESOLVED, that the Board hereby adopts the proposed Reliability Standard FAC-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 FAC-011-3, as presented to the Board at this meeting.

Proposed Reliability Standard FAC-014-3

RESOLVED, that the Board hereby adopts the proposed Reliability Standard FAC-014-3, 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 FAC-014-2, as presented to the Board at this meeting.

Proposed Reliability Standard IRO-008-3

RESOLVED, that the Board hereby adopts the proposed Reliability Standard IRO-008-3, 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 IRO-008-2, as presented to the Board at this meeting.

Proposed Reliability Standard TOP-001-6

RESOLVED, that the Board hereby adopts the proposed Reliability Standard TOP-001-6, 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-001-5, as presented to the Board at this meeting.

Proposed Reliability Standard FAC-003-5

RESOLVED, that the Board hereby adopts the proposed Reliability Standard FAC-003-5, 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 FAC-003-4, as presented to the Board at this meeting.

Proposed Reliability Standard PRC-002-3

RESOLVED, that the Board hereby adopts the proposed Reliability Standard PRC-002-3, 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 PRC-002-2, as presented to the Board at this meeting.

Proposed Reliability Standard PRC-023-5

RESOLVED, that the Board hereby adopts the proposed Reliability Standard PRC-023-5, 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 PRC-023-4, as presented to the Board at this meeting.

Proposed Reliability Standard PRC-026-2

RESOLVED, that the Board hereby adopts the proposed Reliability Standard PRC-026-2, 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 PRC-026-1, as presented to the Board at this meeting.

Retirement of FAC-010-3

RESOLVED, that the Board hereby approves the proposed retirement of Reliability Standard FAC-010-3, as presented to the Board at this meeting.

Definitions for Inclusion in the Glossary of Terms used in NERC Reliability Standards

RESOLVED, that the Board hereby adopts the definition of System Operating Limit, as presented to the Board at this meeting.

FURTHER RESOLVED, that the Board hereby adopts the definition of System Voltage Limit, as presented to the Board at this meeting.

Implementation Plan for Project 2015-09

RESOLVED, that the Board hereby approves the associated implementation plan for the above-listed standards and definitions, as presented to the Board at this meeting.

Authorization and Further Action

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.

FURTHER RESOLVED, that the Board directs NERC staff, working with stakeholders, to examine whether conforming changes are needed to the CIP-002 and CIP-014 Reliability Standards in light of the foregoing resolutions and to report its findings to the Board.

WECC Regional Reliability Standards Development Procedures

Mr. Gugel presented the WECC regional Reliability Standards Development Procedures, referencing the material included in the advance agenda package. Upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board hereby approves the Western Electricity Coordinating Council Reliability Standards Development Procedures, substantially in the form 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 resolution.

Critical Infrastructure Protection Board Resolution Updates

Mr. Gugel provided an update on activities in support of resolutions approved by the Board regarding the Critical Infrastructure Protection (CIP) reliability Standards, referencing the material provided in the advance agenda package. He highlighted activities underway to address low impact BES Cyber Assets, including: (1) a standards project that is underway to address the categorization for Transmission Only Control Centers following the Board's withdrawal of the CIP-002-6 standard in February 2021; and (2) a broader review and analysis of the low impact criteria that will be conducted in the coming months.

Cold Weather Standards Update

Mr. Gugel provided an update on efforts to develop cold weather Reliability Standards under Project 2019-06 Cold Weather, referencing the material provided in the advance agenda package. He reported that development of the proposed standards is on track to be completed by the deadline set in the Board's March 22, 2021 resolution and, if approved by the ballot body, will be presented to the Board at its June 11, 2021 meeting. Mr. DeFontes thanked NERC's stakeholders for their attention and efforts in completing this important project in a timely manner.

Other Matters and Reports

Policy Input and Member Representatives Committee Meeting

Mr. DeFontes referred to the discussion of policy input items and technical updates at the May 13, 2021 Member Representatives Committee (MRC) meeting.

NERC Membership Roster

Ms. Perotti presented management's proposed plan for renewing the NERC membership roster, referencing the materials included in the advance agenda package. She highlighted that the renewal was made necessary by both FERC's approval of revisions to the NERC membership sectors in the NERC Bylaws on April 5, 2021 and the time that has elapsed since the last renewal in 2018. Ms. Perotti noted that NERC plans to conduct outreach in the coming weeks to help prepare members for the renewal process. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board, pursuant to Article II, Section 2 of the NERC Bylaws, hereby establishes August 20, 2021 as the date by which all NERC members must submit their registration renewals.

FURTHER RESOLVED, that the Board authorizes the plan and membership renewal form submitted by NERC management for the renewal of NERC membership by all NERC members, substantially in the form presented to the Board at the meeting.

Proposed Revisions to Section 1003 of the Rules of Procedure

Mr. Elstein summarized the proposed revisions to Section 1003 of the NERC Rules of Procedure, referencing the material included in the advance agenda package. Upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board hereby approves the revisions to Section 1003 of the NERC Rules of Procedure, substantially in the form 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 resolution.

Proposed Rules of Procedure Revisions for Compliance Monitoring and Enforcement Program and Training and Education Program

Ms. Stasko and Mr. Noess presented the proposed revisions to Compliance Monitoring and Enforcement Program provisions of the NERC Rules of Procedure. Ms. Stasko highlighted the outreach NERC conducted with stakeholders in formulating the final proposed changes. Mr. Thilly noted the importance of the proposed changes in solidifying NERC's risk-based compliance monitoring and enforcement approach, and Mr. DeFontes commended NERC staff for its work. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board, upon recommendation of the Compliance Committee, hereby approves the revisions to Sections 400, 1500, and Appendices 2 and 4C of the NERC Rules of Procedure, substantially in the form 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.

Ms. Stasko then presented the proposed revisions to the Training and Education provisions of the NERC Rules of Procedure, referencing the materials included in the advance agenda package. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board hereby approves the revisions to Sections 600 and 900 of the NERC Rules of Procedure, substantially in the form 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.

SERC Reliability Corporation Bylaws Amendments

Ms. Jenkins-Johnston presented the proposed revisions to the Bylaws of SERC Reliability Corporation. Upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board hereby approves the proposed amendments to the Bylaws of SERC Reliability Corporation, substantially in the form 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 resolution.

2021 State of Reliability Report Preview

Mr. Moura provided a preview of the 2021 State of Reliability Report, noting that the report is intended to be an objective, credible, and concise source of guidance to the Board and policy makers on reliability trends and emerging reliability risks. Ms. Pratt provided an overview of the report's findings, highlighting the challenges that faced the grid in 2020 including weather events, the COVID-19 pandemic, and a supply chain compromise. She noted the favorable and unfavorable trends seen in certain reliability indicators in 2020.

2021 ERO Enterprise Reliability Indicators

Mr. DeFontes deferred this item to the August meeting and referred to the materials included in the advance agenda package.

Committee Reports

Representatives of the Standing Committees provided reports to the Board highlighting items from their written reports, which had been included with the advance meeting materials.

Member Representatives Committee

Mr. Paul Choudhury, Committee Chair, summarized the topics that had been discussed at the May 13, 2021 MRC meeting, referring to the materials provided in the advance agenda package and the posted presentations.

Personnel Certification Governance Committee

Mr. Cory Danson, Committee Chair, provided an update on the activities of the Committee, referencing the materials provided in the advance agenda package and summarizing upcoming work.

Standards Committee

Ms. Amy Casuscelli, Committee Chair, provided an update on the activities of the Committee, referencing the materials provided in the advance agenda package. She highlighted the Committee's approval of a waiver to allow the Project 2019-06 Cold Weather team to complete development of their standards by the Board's June deadline.

Compliance and Certification Committee

Ms. Jennifer Flandermeyer, Committee Chair, referred to the written report included in the advance agenda package, highlighting recent Committee activities. She highlighted the Committee's collaboration with NERC's Director of Internal Audit and the stakeholder perceptions work plan associated with the Committee's stakeholder perceptions feedback program.

Reliability and Security Technical Committee

Mr. Greg Ford, Committee Chair, provided an update on the activities of the Committee, referencing the materials provided in the advance agenda package. He thanked Mr. Piro for his contributions as Committee liaison and highlighted the Committee's coordination with the Reliability Issues Steering Committee. Mr. Ford thanked Mr. David Zwergel, Committee Vice Chair, for his service to the Committee and congratulated him on his upcoming retirement.

Reliability Issues Steering Committee

Mr. Brian Slocum, Committee Vice Chair, provided an update on the activities of the Committee, referencing the materials provided in the advance agenda package. He highlighted the upcoming posting of the 2021 ERO Risk Priorities Report.

Electricity Subsector Coordinating Council

Mr. Robb reported on recent Electricity Subsector Coordinating Council activities, including discussion of the February 2021 event affecting Texas and the middle south United States and the upcoming GridEx event. He also noted that the E-ISAC gave a presentation on cyber threats.

Forum and Group Reports

North American Energy Standards Board

Mr. Michael Desselle, Chair of the NAESB Board of Directors, discussed NAESB's coordination with NERC on reference documents and expressed NAESB's support of efforts to develop standards to support cyber security.

North American Transmission Forum

Mr. Tom Galloway, Forum President and Chief Executive Officer, referenced the written report and highlighted certain items, including the Forum’s work with NERC and government partners on response to COVID-19 challenges, work pertaining to Facility Ratings, and supply chain efforts.

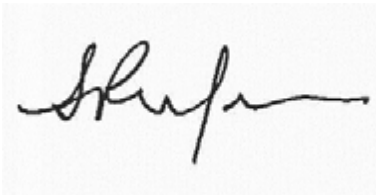
North American Generator Forum

Mr. Allen D. Schriver, Forum Chief Operating Officer, referenced the written report included in the advance agenda package and highlighted the Forum’s recent work.

Adjournment

There being no further business, and upon motion duly made and seconded, the meeting was adjourned.

Submitted by,



Sônia Mendonça
Corporate Secretary

Personnel Certification Governance Committee Proposed Charter Amendments

Action

Approve revisions to the Personnel Certification Governance Committee Charter.

- Attachment 1 – (REDLINE) PCGC Charter

Overview

The purpose of the Personnel Certification program is to ensure that skilled and qualified personnel, including system operators, maintain the reliability of the Bulk Power System through implementation of Reliability Standards. The PCGC is the governing body that establishes policies and monitors the performance of this program.

The Nominating Task Force selects candidates for PCGC membership who are ultimately appointed by the NERC Board of Trustees. NERC proposes to amend Chapter 5 (Selection of Members) of the PCGC charter to enhance the criteria required for selecting members of the PCGC.

Bulk Electric System (BES) System Operations Experience

- NERC proposes to specify that system operations experience for candidates of the PCGC must include registered entity experience with at least one of the following functions: Reliability Coordinator (RC), Balancing Authority (BA) or Transmission Operator (TOP). These functions have the primary responsibility for BES operation and reliability. Such BES experience can include being an instructor or program developer for RCs, BAs or TOPs who are required under NERC Reliability Standards to create training programs around company-specific, reliability-related tasks (Systematic Approach to Training).

Valid and Current NERC System Operator Credential

- NERC awards any individual that passes a system operator Certification exam a Certification Credential that must be maintained through continuing education. Historically, PCGC membership has commonly consisted of individuals that hold an RC credential and it is the dominating credential across the ERO. As a result, it is not feasible to mandate that PCGC membership represent all four system operator credentials. NERC proposes that any candidate for PCGC membership should have a valid and current NERC system operator Credential which indicates that the individual's knowledge of BES system operations is not dated. This requirement aligns with the proposal to require sufficient knowledge of NERC Reliability Standards.

General Knowledge of Certification Programs

- NERC proposes to remove the requirement for PCGC candidates to have experience with certification program administration and budget administration because these requirements are too narrow and do not significantly contribute to other important aspects and responsibilities of the PCGC. Instead, NERC proposes that candidates must

demonstrate that they understand the underlying principles for having a certification program to assess and maintain baseline knowledge and skills.

Geographic Diversity Across the NERC Footprint

- Since geographic diversity could be interpreted in many ways, NERC proposes a footnote providing examples of geographic diversity desired by the PCGC.

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Personnel Certification Governance Committee Charter

Approved by the NERC Board of Trustees

May 5, 2016

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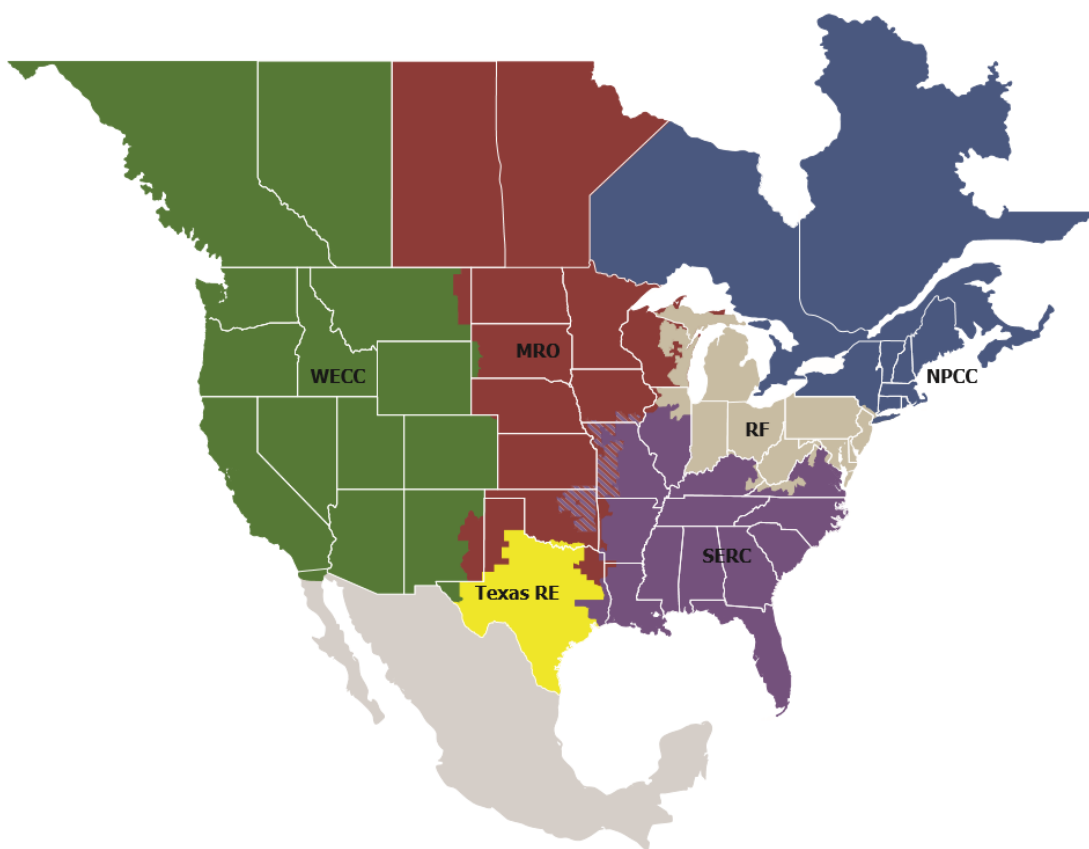
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Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six RE boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one RE while associated Transmission Owners /Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Chapter 1: Purpose

In accordance with the NERC by-laws, the purpose of the Personnel Certification Governance Committee (PCGC), or the “Committee,” shall be to provide oversight to the policies and processes used to implement and maintain the integrity and independence of NERC’s System Operator Certification Program. The governance authority and structure of the PCGC shall be implemented and maintained so that policies and procedures are established to protect against undue influence that could compromise the integrity of the system operator certification process.

Chapter 2: Activities

Reporting

The PCGC shall report directly to the NERC Board of Trustees (Board) and the NERC President and CEO regarding governance and administration of the System Operator Certification Program, provided that:

- The PCGC shall have autonomy in all operational processes for the System Operator Certification Program, including:
 - Policies and procedures of the System Operator Certification Program, including eligibility requirements and application processing
 - Requirements for personnel certification, maintaining certification, and recertification
 - Examination content, development, and administration
 - Examination cut score
 - Grievance and disciplinary processes
 - Governing body and subgroup meeting rules, including agenda, the frequency of meetings, and related procedures
 - Subgroup appointments and work assignments
 - Publications about personnel certification and recertification
 - Setting fees for applications to become certified, applications for maintaining certification, and all other services provided as a part of the personnel certification and recertification activities
 - Program funding, spending, and budget authority
 - Financial matters related to the operation of the program shall be segregated from other NERC activities

Periodic assessments

PCGC officers or delegates shall provide the NERC Board quarterly updates on the System Operator Certification Program during the NERC Board meetings. The PCGC will also provide the NERC Board quarterly assessments through electronic reports as part of the Board package for the NERC Board meetings.

Staff funding

In order to maintain the independence of the PCGC, NERC staff shall administer the System Operator Certification Program on behalf of the PCGC on a fee-for-service basis.

Chapter 3: Membership

Goals

Each committee member shall commit to protect the integrity and independence of the System Operator Certification Program while guarding against undue influence that could compromise the integrity of the System Operator Certification process.

Expectations

Each committee member shall commit to attend all committee meetings and to participate in all discussions. When voting, each member shall commit to vote for what is best for the System Operator Certification Program without regard for their own goals.

Chapter 4: Representation

The PCGC shall have ten voting members, made up of a chair, a vice chair, and eight at-large representatives. As the System Operator Certification Program is a peer certification program, it is important to have representatives of the certificated body. Therefore, there shall be a representative for each of the four system operator credentials on the committee to represent the interests of those persons.

Qualification of Voting Members

The voting members shall have the following qualifications:

- All members shall hold a valid NERC system operator credential
- At least one member shall be a Canadian representative (if there is no Canadian representative, then a position shall remain open)
- All members must be fluent in English
- PCGC Voting Members may not be employees and/or contractors of vendors providing System Operator Certification Exam preparation services

NERC Representative

The President and CEO of NERC shall appoint one or more NERC representative(s) to the PCGC. The NERC representative shall be a full member of the committee, with all rights granted to the member, with the exception that the NERC representative will not have a vote and is not eligible to hold a committee office. If there is more than one NERC representative appointed to the committee, then only one will be a full member and all others shall be observers.

In addition, the NERC representative shall:

- Serve as a liaison between NERC management and the PCGC
- Manage all aspects of the System Operator Certification Program
- Act as the secretary to the committee for the purpose of disseminating the agenda, keeping the minutes, and making meeting arrangements
- Serve as a member of each subgroup of the committee, as well as serving as the secretary for each of the subgroups

Regulators

The Federal Energy Regulatory Commission (FERC) and other governmental authorities in Canada have the option of having a non-voting member on the PCGC.

Term

The voting members shall serve staggered two-year terms with five of the members appointed in odd years and the other five appointed in even years.

Replacement of Resigning Members

In the event a member can no longer serve on the PCGC, that member shall submit a written resignation to the committee chair or secretary. The committee chair shall refer the vacancy resulting from a resignation to the Nominating Task Force. The committee chair may seek a vote of the committee to allow the proposed replacement member to be seated, pending appointment of the replacement, at the NERC Board's next scheduled meeting.

Replacement of Nonparticipating Members

The chair shall request any committee member who fails to actively participate¹ in the committee activities to submit a resignation or to request continuation of membership with an explanation of extenuating circumstances. In the event the member submits an explanation of extenuating circumstances, the committee shall decide whether the member's circumstances warrant continued PCGC membership.

If a written response is not received within 30 days of the chair's request, the lack of response shall be considered a resignation. The committee chair shall refer the vacancy resulting from a resignation to the Nominating Task Force. The committee chair may seek a vote of the committee to allow the proposed replacement member to be seated, pending appointment of the replacement, at the Board's next scheduled meeting.

Changes of Member Qualifications

If an existing member no longer meets the membership qualifications, the member will be removed from the committee.

¹ Examples of "not actively participating" are: showing up at meetings but being otherwise occupied; being detached from the business of the meeting; missing every other meeting; missing two meetings, then showing up at one or two, then missing a few in a row; not being available for task forces or other work assignments; etc.

Chapter 5: Selection of Members

Appointed by the Board

The members of the PCGC shall be appointed by the NERC Board from candidates selected and presented by a Nominating Task Force. This shall be done in accordance with NERC Rules of Procedure for the PCGC. Nominations and appointments shall take into account the need to include representatives of all geographic regions of North America.

Nominating Task Force

The PCGC shall have a Nominating Task Force consisting of at least three members, whose members shall be nominated from the committee membership by the committee chair and approved by the committee. The committee chair shall appoint the chair from among the task force members.

- The Nominating Task Force shall have the following responsibilities:
 - Prepare a slate of candidates for appointment that reflects the diverse requirements of the committee, and then provide this slate to the NERC Board. Candidates must meet the following criteria:
 - [BES System operations experience²](#)
 - [Have a valid and current NERC System Operator Credential](#)
 - [General knowledge of Certification programs³](#)
 - ~~Representation for the four system operator credentials~~
 - ~~Certification program administration experience~~
 - ~~Experience in budget administration~~ [Sufficient knowledge of the NERC Reliability Standards⁴](#)
 - Geographic diversity [across the NERC footprint⁵](#)
- The Nominating Task Force may give preference to candidates nominated by organizations representing a broad cross section of an industry segment, such as an industry trade association.

Membership Nominating Process

The following are the elements of the nominating process:

- Nominations shall be open to all interested parties and self-nominations shall be accepted.
- A request for nominations shall specify the number of committee positions to be filled, the qualifications for filling each position, and additional considerations in evaluating candidates, such as areas of expertise needed on the committee.
- A request for nominations shall provide a window of at least 30 days for submission of nominations.
- The Nominating Task Force shall select from the nominations received during the open nominating period. Should there be a vacancy for which none of the nominees are qualified, the position shall be left open and shall be reposted not sooner than 45 days after the close of the last nominating period.

² [The operating experience must be as a Reliability Coordinator, Balancing Authority, or Transmission Operator. Training experience as an instructor or program developer in a Systematic Approach to Training \(SAT\) environment would be beneficial.](#)

³ [General knowledge includes why a certification program is necessary and how it functions.](#)

⁴ [Sufficient knowledge includes non-compliance related areas such as purpose, various types, and applicability.](#)

⁵ [Diversity may involve different interconnections, NERC Reliability Regions, company organizations, etc.](#)

- The Nominating Task Force may choose to submit incumbent members to renew their membership without going to the open nominating process.
- NERC staff shall administer the nominations process and shall forward nominations received to the Nominating Task Force. The Nominating Task Force shall evaluate the nominees using the established criteria. The Nominating Task Force shall then prepare its recommended slate of candidates and indicate the date of each appointment.
- Nominees to fill vacancies shall serve out the remaining term of the vacancy.
- The Nominating Task Force shall present the recommended committee membership slate to the NERC Board.
- The NERC Board, by virtue of approving a committee slate, appoints each committee member. The Board may also appoint members individually as needed.

Chapter 6: Officers

Positions

The committee shall have two officers, a chair, and a vice chair.

Nominations

The Nominating Task Force shall prepare a slate of officer candidates and present the proposed slate for the committee to consider.

The committee shall consider the slate recommended by the Nominating Task Force, as well as any additional nominations the members may offer from the floor, and approve a recommended slate of officers.

- The slate of committee officers shall be submitted to the chair of the NERC Board. The chair shall appoint the committee officers.

Term

The officers shall serve in that capacity until their current committee membership term expires. An officer's term may begin at the date that begins their committee membership term.

Chair Duties

The chair shall preside at all meetings of the committee. The chair shall be responsible for the efficient operation of the committee. The chair shall be an ex-officio member of each subgroup of the committee. The chair may delegate from time to time any or all of the previously mentioned duties and authority to the vice chair.

Vice Chair Duties

The vice chair's duties may be delegated to him or her by the chair. The vice chair shall act as the chair when the chair requests it. In the event the chair is unable to discharge the duties and powers of that office because of incapacity or during any vacancies in the office of the chair, the vice chair shall act as chair until the cessation of such incapacity or the filling of such vacancy.

Chapter 7: Meetings

Parliamentary Procedures

The committee meetings will follow the most current edition of Roberts Rules of Order, as adjusted by this document.

Regular Meetings of the Committee

Regular meetings of the committee will be held quarterly to maintain the effectiveness of the System Operator Certification Program. Typically, two meetings will be held in conjunction with Exam Working Group meetings, and one meeting will be a joint meeting with the Personnel Subcommittee for alignment of the NERC Continuing Education program with the NERC System Operator Certification program. If adopted by motion at any meeting of the committee, the committee may provide for additional regular meetings.

Special Meetings of the Committee

Special meetings of the committee may be called at any time by the chair or by any three voting members for any purpose. Such meetings may be held, upon notice given to all committee members, not less than five (5) days prior to the date of the meeting. Such notice shall specify the time, date, place, and purpose of the meeting. The notice may be given by telephone, electronic media, or express delivery.

Quorum and Voting Requirements

The quorum necessary for the transaction of business at meetings of the committee shall be two-thirds of the voting members. Each voting member shall have one vote. Actions by the committee shall be approved upon receipt of the affirmative vote of two-thirds of the voting members present. At any particular meeting, once a quorum is established, it remains established until the meeting is adjourned.

Open Meetings

Notice to the public of the dates, places, and times of meetings of the committee, and all non-confidential material provided to the committee, shall be posted on NERC's meeting web site. Meetings of the committee shall be open to the public, but are subject to reasonable limitations due to the availability and size of meeting facilities.

- The committee may meet in a closed session to discuss matters of a confidential nature, including, but not limited to the following:
 - Personnel matters
 - Litigation
 - Certification exam material or content
 - Commercially sensitive information.

Any or all of the members of the committee may participate in a meeting of the committee by means of a communications system by which all persons participating in the meeting are able to hear each other.

Action without a Meeting

Any action that is required or permitted to be taken at a meeting of the committee may be taken by the committee without a meeting if the action is consented to in writing, or by email, by two-thirds of members of the committee entitled to vote on the action. The call for action without a meeting of the committee may be initiated by the chair or by any three members. The members of the committee shall receive written, or email, notice of the results within seven days of the action vote. All written, or email, responses of the members shall be filed with the minutes of the committee.

Agendas

An agenda for any meeting of the committee shall be posted on the NERC web site prior to the meeting. The chair has the prerogative to add to, subtract from, or change the sequence of topics on the agenda at any time before or during the meeting without notice.

Proxies

Proxies or alternates are not allowed.

Antitrust Compliance

The committee and its members shall be compliant with NERC's Antitrust Guidelines at all times at NERC functions.

Non-disclosure Agreement

All members, voting and not voting, shall sign and abide by NERC's non-disclosure agreement.

Chapter 8: Subcommittees, Task Forces, and Working Groups

The committee can form subcommittees, task forces, and working groups as deemed necessary by the chair.

Appendix A: Version History

Table A.1: PCGC Charter Version History					
Revision No.	Date	Chapter	Page	Description	Version
3	May 17, 2021	5	10	Updated candidate criteria	2
2	February 2020	All	All	Admin review – placed on current template	1.1
1	May 16, 2016			Approved by the Board	1

Procedure for Selection of Members to the Compliance and Certification Committee

Action

Approve

Summary

The Compliance and Certification Committee (CCC) presents to the Board of Trustees for approval a revised version of the CCC's procedure for selecting members of the CCC. The revisions, as shown in the accompanying redlined version of the procedure, primarily relate to the use of questionnaires and evaluation forms to enhance the objectivity, transparency, and repeatability of the CCC's nomination and selection processes. The revisions also include additional details on selecting members of the CCC's Nominating Subcommittee, which is responsible for soliciting nominees and evaluating prospective CCC members.

The CCC seeks approval of this revised procedure because it enhances the CCC's process for selecting members who are then subject to review and approval by the Board of Trustees. By requiring greater rigor from the Nominating Subcommittee and CCC leadership in reviewing and documenting their decisions about nominees for CCC membership, the procedure should foster greater confidence from stakeholders about the selection of CCC members.

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NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Procedure for the Selection of Members to the NERC Compliance and Certification Committee

CCCPP-013-2

~~August 20XX XX, 2020~~1

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Introduction

Background

This document establishes procedures for the NERC Compliance and Certification Committee (CCC) Nominating Subcommittee for the purpose of executing its responsibilities in accordance with the CCC Charter. The procedures are intended to provide a consistent and fair approach enabling the Nominating Subcommittee to effectively execute its responsibilities.

Scope

The scope of these procedures is to assist the Nominating Subcommittee with maintaining a full and active hybrid representation model consisting of the following:

- Industry sector members;
- At-large members; and⁷
- Non-voting members.

It is expected that CCC voting members will be from an entity/organization in the NERC Membership¹, but it is not required. It is acceptable for a member or an industry/trade organization to nominate an individual to represent their sector if the nominee meets the minimum qualifications of the CCC.

The industry sector membership consists of two (2) representatives from the following:

- Sector 1 - Investor-owned Utility;
- Sector 2 - State/Municipal Utility;
- Sector 3 - Cooperative Utility;
- Sector 4 - Federal or Provincial Utility/Power Marketing Administration;
- Sector 5 - Transmission-dependent Utility;
- Sector 6 - Merchant Electricity Generator;
- Sector 7 - Electricity Marketer;
- Sector 8 - Large End Use Electricity Customer;
- Sector 9 - Small End Use Electricity Customer;
- Sector 10 - ISO/RTO; and⁷
- Sector 12 - Government Representatives (U.S. State Sub-sector only²).

The at-large membership shall consist of six (6) representatives from various sectors of the NERC Membership³ and balance representation on the CCC in the following areas:

- Geographic diversity from all interconnections and ERO Enterprise Regional Entities,
- High-level understanding and perspective on reliability risks based on experience at an organization in a sector, and
- Experience and expertise from an organization in the sector relevant to the Committee purview.

¹ Not the same as NERC Compliance Registration or the Registered Ballot Body for Standards development. See active NERC Membership list on the ERO Portal.

² Nominations from the U.S. State sub-sector are expected to be provided by NARUC.

³ [Including Sector 13 – Associate.](#)

The non-voting membership consists of four (4) representatives from the following sub-sectors of Sector 12 of the NERC Membership⁴:

- U.S. Federal – 2
- Canadian Federal – 1
- Canadian Provincial – 1

⁴ The Committee Chair, Nominating Subcommittee Chair, or CCC secretary will coordinate with entities entitled to non-voting membership to identify representatives for the non-voting seats. Canadian organizations such as the Canadian Electricity Association and Canada's Energy and Utility Regulators will be consulted and solicited for assistance in recruiting Canadians to serve on the [€Committee](#).

Processes and Procedures

Open Nomination Process

CCC members serve a three- (3) year term beginning on January 1 and concluding on December 31. The terms of members shall be staggered according to the CCC-approved schedule posted on the NERC website. This rotation ensures that approximately one-third of the committee is subject to reappointment or replacement each year. Therefore, the Nominating Subcommittee shall adhere to the following timetable to facilitate annual appointments:

- June – The Nominating Subcommittee Chair updates the CCC on future openings and solicits input [from the CCC Executive Committee](#) on specific needs. [To ensure consistent input, the Executive Committee will complete a questionnaire](#) based on qualifications criteria [listed in the CCC Charter](#) and upcoming items in the CCC Work Plan. The Nominating Subcommittee also evaluates current members's adherence to CCC expectations as described in the Member Expectation Monitoring Process below.
- Early-July – NERC staff prepares a request for nominations that includes open seats and terms concluding on December 31. The CCC Chair and the Nominating Subcommittee Chair reviews the draft request and confirms content.
- Mid-July – NERC staff releases the formal request for nominations to industry with a 30-day response deadline.
- Mid-August – Nominating Subcommittee begins reviewing information on nominees and selects recommendations in accordance with the Selection Process by the due date for meeting materials for the next CCC meeting.
- September – Nominating Subcommittee informs CCC Membership of their recommendations.
- October – The Nominating Subcommittee Chair or designee prepares the slate of recommendations and submits to the NERC Board of Trustees (Board) for approval at their November meeting.
- November – The Board considers the CCC recommendations and completes their actions.
- If approved, the term for these members begins on January 1.
- If not approved, it will remand back to the Nominating Subcommittee for a different recommendation.

Selection Process

The Nominating Subcommittee shall process nominations as follows:

- NERC staff receives nomination forms from industry participants and reviews to verify the following:
 - Response to all requested information;
 - The nominator's NERC Membership status⁵ in the ERO Portal, Registered Entity status², or membership in an applicable trade organization;
 - Nominee's qualifications to current posting;
 - Only one nomination per entity/organization (including affiliates);
 - The nominee's entity/organization does not already have a member on the CCC; and
 - If nomination is received from another entity/organization, then confirm nominee's willingness to serve.

⁵ The entity's/organization's NERC Membership must be active on the deadline date for receiving nominations. Nominations submitted by a non-member or member in [a](#) different sector are only considered for the at-large membership.

- If discrepancies are found, then NERC staff notifies the CCC Chair and Nominating Subcommittee Chair to determine a resolution.
- If no discrepancies are found, then NERC staff posts the nomination form on the public and extranet sites and notifies the Nominating Subcommittee.
- The Nominating Subcommittee Chair and NERC staff coordinate a call with the members of the Nominating Subcommittee to select recommendations. If a member of the Nominating Subcommittee is up for reappointment, then the member will be recused from the discussion and evaluation of their nomination.
- The Nominating Subcommittee shall independently select nominations using the evaluation form⁶ based on the qualification criteria below and may give preference to existing members, nominations from industry/trade organizations, and/or current needs of the CCC. Sector nominees can also be considered for openings in the at-large membership.
 - Senior-level industry expertise
 - Knowledge of topics within the scope of the CCC
 - Experience within their respective organizations in at least one of the following areas:
 - Compliance administration
 - Compliance enforcement
 - Risk management
 - NERC Registration
 - NERC Certification
 - NERC Standards
 - Geographical representation (Regional Entity, Interconnection, company footprint, etc.)
 - Adherence to CCC expectations (If applicable)
 - Participation in other ERO committees, trade organizations, membership organizations (NATF, NAGF, etc.), or regional forums
 - Input from the CCC Executive Committee
- Nominating Subcommittee Chair or designee prepares meeting materials to inform the CCC of the selected nominees prior to their posting deadline.
- Nominating Subcommittee Chair or designee prepares meeting materials for Board approval of the CCC recommendations prior to their posting deadline.

Member Expectation Monitoring Process

To maintain an active and productive CCC membership, the Nomination Subcommittee shall review records of recent meetings and solicit feedback from the CCC Executive Committee to identify members who are deficient with one or more of the following expectations in the CCC Charter:

- Act consistently with the procedures in this Charter and Robert's Rules of Order during meetings;
- Adhere to NERC Antitrust Guidelines and Participant Conduct Policy;
- Demonstrate and provide expertise in support of Committee activities;

⁶ See Nominating Subcommittee extranet site for current form.

- Adjudicate in a fair and unbiased manner that meets applicable legal and due process requirements when participating in hearing procedures conducted under the NERC ROP Section 408;
- Solicit comments and opinions from constituents and groups of constituents or trade organizations represented by the member and convey them to the Committee;
- Respond promptly to all Committee requests, including requests for reviews, comments, and votes on issues before the Committee;
- Arrange for a proxy to attend and vote at Committee meetings in the member's absence; or
- Respond promptly to all requests to register for Committee meetings.

Some additional considerations are:

- Consistent attendance in CCC meetings during their term except for extenuating circumstances;
- Non-participation/contribution on a CCC subcommittee;
- Unwillingness to mentor new CCC members when requested by CCC leadership;
- Unwillingness to participate as an observer in periodic NERC Internal Audit efforts when requested, to the extent practicable;
- Mergers or acquisitions that result in more than one member from an entity/organization; or
- A conflict of interest that would impair his or her ability to fulfill obligations under the Charter.

Member deficiencies shall be reported to the CCC Chair for resolution.

The CCC Chair may request any CCC member who ceases to participate in the CCC consistent with member expectations (above) and to the satisfaction of the CCC Executive Committee, to submit a resignation or to request continuation of membership with an explanation of extenuating circumstances. If a written response is not received within 30 days of the Chair's request, the lack of response will be considered a resignation. If the written response is considered incomplete or requires additional action, the matter will be resolved by the CCC Chair with support and endorsement by the CCC Executive Committee.

Resignation Process

Appointment to the CCC is based on qualifications and is attributed specifically to an individual – not an entity/organization. Therefore, members who cannot complete their term for any reason, will not be replaced outright with an individual from the same entity/organization. The Nominating Subcommittee will recommend a replacement for the open position during the open nomination cycle via the normal Selection Process. If possible, the member can provide a proxy to CCC meetings during the interim period. CCC members serve at the pleasure of the Board. The Board may initiate a request for resignation, removal, or replacement of a member from the CCC, as it deems appropriate or at the request of the CCC Chair.

Re-appointment Process

There is no limitation on the number of times a member may be re-appointed. However, to ensure transparency and fairness to other industry participants, the member will not be re-appointed outright and therefore must apply for membership consistent with the annual Open Nomination Process. The member's past participation in CCC activities and current information will be evaluated during the Selection Process. Preference is given to existing members who are in good standing with CCC expectations, maintain the minimum qualifications, and meet the current needs of the CCC.

CCC Chair and Vice-Chair Election Process

Prior to the annual appointment of representatives to the CCC, the CCC shall select a Chair and Vice Chair of the CCC from among its voting members by majority vote of the members of the CCC to serve a two-year term. The incumbent Chair and Vice Chair shall not vote ~~or otherwise participate~~ in the selection of the incoming Chair or Vice Chair. Therefore, the Nominating Subcommittee Chair shall prepare the slate on nominations and facilitate voting during the CCC meeting. The newly selected Chair and Vice Chair shall not have been representatives of the same sector. The selection of the Chair and Vice Chair of the CCC shall be subject to approval of the Board.

Subordinate Group Appointment Process

A significant amount of CCC responsibilities are executed through an active membership in subordinate groups. Therefore, the Nominating Subcommittee can assist the chair of each subordinate group with staffing needs and balancing representation. As part of the annual Open Nomination Process, the Nominating Subcommittee solicits input from chairs of each subordinate group via the CCC Executive Committee to identify: 1) specific areas of expertise or experience to request from industry; and 2) the recommended placement of new members to a subordinate group. The recommendations are submitted to the chair of the subordinate group for appointment. For subcommittees, the member's term shall conclude in conjunction with their CCC membership term.

Subordinate group appointments from outside the CCC membership are allowed and can provide additional perspective and expertise as needed. However, the appointees must meet the same qualifications and expectations of the CCC membership. If a need is identified by the chair of the subordinate group and approved by the CCC Chair, then a request for nominations could be made, consistent with the process for soliciting CCC members to ensure transparency and fairness to all industry participants. The chair of the subordinate group reviews all valid nominations and selects an appointment. The appointee is eligible to serve a three- (3) year term. If the need still exists after the term concludes, then another request for nominations is made and the member is eligible for reappointment.

Nominating Subcommittee Appointment Process

~~The Nominating Subcommittee shall consist of five (5) CCC members from various sectors of the voting membership. The members are nominated by the CCC Chair, approved by the CCC membership and appointed by the CCC Chair to serve a one (1) year term beginning on January 1 and concluding on December 31. The Nominating Subcommittee Chair will be appointed by the CCC Chair from among the five members. The Nominating Subcommittee will consist of five members nominated by the Committee Chair and approved by the Committee. The Chair of the Nominating Subcommittee will be selected by the Committee Chair from among the five Nominating Subcommittee members annually. Members of the Nominating Subcommittee will serve concurrently with the term of the Committee Chair that selects the Nominating Subcommittee members.~~

~~This is typically performed during the annual Open Nomination Process. Member deficiencies shall be reported to the CCC Chair for resolution. For potential candidates, those who are not up for reappointment during their term on the Nominating Subcommittee will be considered, to the degree the population of candidates allows.~~

Sector Vacancy Process

It is essential that all voting seats are filled with active participants in order to effectively administer the business of the CCC. Therefore, during the annual Open Nomination Process, the Nominating Subcommittee will strive to obtain nominations to fill all open seats. However, if the Nominating Subcommittee receives no valid nominations from a voting sector, then the open seat will convert to ~~the an~~ at-large membership for the term and a nomination is selected by the Nominating Subcommittee in accordance with the Selection Process. This process continues until the sector provides a valid nomination.

Revision History

Date Version	Number	Comments
June 17, 2020	1.0	Approved by the Compliance and Certification Committee
August 20, 2020		Approved by the Board of Trustees
<u>June 9, 2021</u>	<u>2.0</u>	<u>Updated. Approved by the Compliance and Certification Committee</u>

MRO Regional Reliability Standards Process Manual

Action

Approve the revised Midwest Reliability Organization (MRO) Regional Reliability Standards Process Manual (RRSPM) and authorize NERC staff to file with the applicable regulatory authorities.

- MRO Regional Reliability Standards Process Manual
[\[MRO Reliability Standard Process Manual-Clean\]](#)
[\[MRO Regional Reliability Standards Process Manual-Redline\]](#)

Background

On March 25, 2021, the MRO Board of Directors approved the revised MRO RRSPM. Following a five-year review, MRO revised its RRSPM to clarify or remove outdated references and update committee names. These non-substantive changes bring the MRO RRSPM up to date. No substantive changes were made.

Summary

Changes to the MRO RRSPM include:

- The replacement of references to the MRO Standards Committee (SC) with MRO Compliance Monitoring and Enforcement Advisory Council (CMEPAC);
- Removal of references to Florida Reliability Coordinating Council (FRCC) and Southwest Power Pool Regional Entity (SPP RE); and
- Removal of reference to reliability functions not monitored by Compliance Enforcement Authorities including, Interchange Authority, Load-Serving Entity, Market Operator, and Purchasing-Selling Entity.

As required by Section 311 of the NERC Rules of Procedure, NERC staff reviewed the revised MRO RRSPM and concluded the document met all of the evaluation criteria. The MRO RRSPM was posted on the NERC website for a 45-day public comment period from April 21 – June 4, 2021. There were four sets of supportive responses including [Comments](#) received from approximately four companies representing four of the Industry Segments.

Additional Information

A link to the project history and files is included for reference:

[NERC-Regional Reliability Standards under Development](#)

Project 2019-02 BES Cyber System Information Access Management

Action

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

- **Reliability Standard CIP-004-7 – Cyber Security – Personnel & Training**
[\[CIP-004-7 Standard\]](#) [\[Redline to approved\]](#)
- **Reliability Standard CIP-011-3 – Cyber Security – Information Protection**
[\[CIP-011-3 Standard\]](#) [\[Redline to approved\]](#)
- **Implementation Plan**
[\[Implementation Plan\]](#)
- **Violation Risk Factors and Violation Severity Levels**
[\[Violation Risk Factors \(VRFs\) and Violation Severity Levels \(VSLs\) Justification for CIP-004\]](#)
[\[Violation Risk Factors \(VRFs\) and Violation Severity Levels \(VSLs\) Justification for CIP-011\]](#)
- **Retirements**
[\[CIP-004-6 – Cyber Security – Personnel & Training\]](#)
[\[CIP-011-2 – Cyber Security – Information Protection\]](#)

Background

The purpose of Project 2019-02 is to clarify the Critical Infrastructure Protection (CIP) Reliability Standards requirements related to both managing access and securing Bulk Electric System (BES) Cyber System Information (BCSI). Specifically, the Project 2019-02 Standard Drafting Team reviewed these requirements to provide increased options for entities to leverage third-party data storage and analysis systems, including cloud services. This project was initiated due to the work of an informal team, in collaboration with the NERC Compliance Input Working Group, to review the use of encryption on BCSI and its impact on compliance with NERC Reliability Standards.

Summary

The proposed Reliability Standards enhance the reliability of the BES by providing options for entities to leverage third-party solutions and clarifying the protections expected when using such solutions (e.g., cloud services).

To that end, proposed Reliability Standard CIP-004-7, which pertains to personnel and training, includes the following modifications:

- Removes references to “designated storage locations” of BCSI;

- Adds Requirement R6 regarding an access management program to authorize, verify, and revoke provisioned access to BCSI; and
- Other minor clarifications to update the standard.

Proposed Reliability Standard CIP-011-3, which pertains to information protection, includes the following modifications:

- Clarifies requirements regarding protecting and securely handling BCSI; and
- Other minor clarifications to update the standard.

Standards Development Process

The proposed Reliability Standards CIP-004-7 and CIP-011-3 were posted for an initial ballot and two additional ballots. The initial comment and ballot period took place December 20, 2019 to February 3, 2020; the second comment and ballot period took place from August 6 to September 21, 2020; and the third additional comment and ballot period took place March 25 to May 10, 2021.

The ballot results for the final ballot for each standard are below.

Standard	Quorum / Approval
CIP-004-7	86.50% / 85.80%
CIP-011-3	86.81% / 83.00%

Minority Issues

None.

Pertinent FERC Directives

While this project did not address any directives to revise standards requirements, FERC directed NERC to file quarterly updates on the status of Project 2019-02 until the revised standards are filed with FERC.¹

Cost Effectiveness

The standards drafting team sought stakeholder input on the cost effectiveness of the proposed standards during the formal comment periods. The vast majority of stakeholders did not have concerns about cost effectiveness.

Additional Information

A link to the project history and files is included here for reference:

[\[Project 2019-02 BCSI Access Management\]](#)

¹ *N. Am. Elec. Reliability Corp.*, “Order Directing Informational Filings Regarding NERC Standard Drafting Projects,” 170 FERC ¶ 61,109 (Feb. 20, 2020).

Proposed Revisions to the NERC Rules of Procedure: Section 300, Appendix 3B, Appendix 3D

Action

Approve the following proposed revisions to the NERC Rules of Procedure:

- **Section 300, Reliability Standards Development**
[\[Section 300 Clean\]](#) [\[Redline to approved\]](#)
- **Appendix 3B, Procedure for Election of Members of the Standards Committee**
[\[Appendix 3B Clean\]](#) [\[Redline to approved\]](#)
- **Appendix 3D, Development of the Registered Ballot Body**
[\[Appendix 3D Clean\]](#) [\[Redline to approved\]](#)

Direct staff to file the revised Rules of Procedure, in substantially the same form as presented, with the applicable governmental authorities for approval.

Background

NERC staff is proposing a series of revisions to the standards-related provisions of its Rules of Procedure, including revisions to Section 300, Reliability Standards Development; Appendix 3B, *Procedures for Election of Members of the Standards Committee*; and Appendix 3D, *Development of the Registered Ballot Body (RBB)*. The revisions consist of updating language, staff titles, and processes; removing unnecessary or duplicative obligations; and clarifying roles and responsibilities.

The proposed revisions will improve the Rules of Procedure by ensuring that the language remains accurate and up to date, that entities are clear with respect to their obligations as members of the Registered Ballot Body and the timing for any required action, and that NERC's reporting to applicable governmental authorities is appropriate and provides the authorities with actionable information.

Summary

The following is a section-by-section summary of the proposed revisions:

Section 300, Reliability Standards Development

Section 302: Removed the list of specific functional classes to which Reliability Standards may apply, to avoid the list becoming out of date in the future.

Section 305: Clarified the obligation of entities to withdraw additional members of the RBB when a change in corporate structure (such as a merger or acquisition) results in the entity or affiliated entities having more than the one permitted representative in a particular Segment. Revised language regarding changing segments (Section 305.3.2) and review of Segment criteria (Section 305.3.3) for consistency with similar provisions in Appendix 3D. These changes will promote clarity as to entity obligations and help ensure adherence to NERC's rules for entity representation in the Registered Ballot Body.

Sections 307, 317, 319: Removed or updated references to obsolete NERC Standards staff titles as appropriate.

Section 309: Updated references to NERC development processes in the Standard Processes Manual, Appendix 3A to the Rules of Procedure. Removed, as redundant, language regarding reporting orders directing new standards and a plan and timetable for modifying or developing remanded or new standards to the Applicable Governmental Authorities. NERC coordinates the development of new and revised standards through various public mechanisms, including the annual Reliability Standards Development Plan prepared under Section 310, and ongoing oversight by the Standards Committee and Project Management Oversight Subcommittee. These mechanisms allow NERC to prioritize projects as appropriate to meet regulatory deadlines and incorporate regulator feedback. Participation by regulated entities in the Canadian provinces helps to ensure those perspectives are represented during the development process.

Section 313: Eliminated the Regional Entity's ongoing obligation to provide an updated catalog listing of Regional Criteria to NERC and replaced it with an obligation to maintain the Regional Criteria in a publicly-available form on the Regional Entity website. These revisions will ensure transparency while eliminating an unnecessary reporting burden on Regional Entities.

Appendix 3B, Procedure for Election of Members of the Standards Committee

Removed or updated references to obsolete NERC Standards staff titles as appropriate.

Appendix 3D, Development of the RBB

Registration procedures: Clarified that the NERC General Counsel may delegate its responsibility to review applications to join the RBB to a member of the General Counsel's legal staff. This change, which is consistent with current practice, will help promote efficiency in the processing of applications to join the Registered Ballot Body.

Segment qualification guidelines: Clarified: (i) that NERC may remove individuals that have not completed the required annual self-selection process following written notice; and (ii) the obligation of entities to withdraw additional members of the RBB when a change in corporate structure (such as a merger or acquisition) results in the entity or affiliated entities having more than one representative in a particular Segment. As noted above, these changes will advance compliance with NERC's rules regarding Segment representation in the Registered Ballot Body by promoting clarity as to a member entity's obligations.

Segments: Updated the criteria for Segment 10 Regional Entity to remove language that is no longer necessary following the dissolution of the SPP and FRCC Regional Entities.

Summary of Comments

NERC posted the proposed Rules of Procedure revisions for a 45-day public comment period from May 14 to June 28, 2021.

NERC received seven sets of responses, including five sets of comments, on the proposed revisions. (Two sets of responses indicated no comments.)

Regarding the proposed revisions to Section 300, commenters suggested additional, minor changes for consistency and clarity. One registered entity commenter suggested retaining the requirement to notify Applicable Governmental Authorities when a new standard is directed.

Regarding Appendix 3B, one commenter suggested re-examining the existing criteria that a Standards Committee member be a registered user in the RBB.

Regarding Appendix 3D, two trade association commenters suggested re-examining the current role of Segment 10 (Regional Entities) in the RBB.

In response to the comments, NERC staff made several clarifying revisions to the proposed language, as described further in the [Consideration of Comments](#). Several of the commenters suggested changes that were outside the limited scope of this project but which may be considered in future revision efforts.

Standards Efficiency Review Update

Action

Information

Background

The scope of the Standards Efficiency Review (SER) was to evaluate NERC Reliability Standards using a risk-based approach to identify potential efficiencies through retirement or modification of Reliability Standard Requirements. Considering that many Reliability Standards have been mandatory and enforceable for over 10 years in North America, this project sought to identify potential candidate requirements that are not essential for reliability, could be simplified or consolidated, and could thereby reduce regulatory obligations and/or compliance burden.

The Standards Efficiency Review (SER) consisted of two phases: (1) Identify retirement or modification of Requirements (2) Develop and recommend programmatic standards-based solutions. In addition, a third CIP work stream was created to evaluate CIP Reliability Standards to identify retirement or modifications of Requirements. To date, a portion of Phase 1 is complete, resulting in FERC approval of the retirement of 18 standard requirements, while the other retirement recommendations are pending. Implementation of the Phase 2 efficiency concepts are in progress. The [Standards Efficiency Review Report and Transition Plan](#) outlines the work of the SER team as well the final recommendations and transition plan. Work will continue on the review of the recommended retirements and to engrain efficiency into all aspects of standards development.

Critical Infrastructure Protection Board Resolution Updates

Action

Information

Background

The below information provides updates on activities in support of resolutions approved by the NERC Board of Trustees (Board) regarding Critical Infrastructure Protection (CIP) Reliability Standards.

Supply Chain Low Impact Resolutions

In 2017, NERC developed new and revised CIP Reliability Standards to help mitigate cyber security risks associated with the supply chain for high and medium impact Bulk Electric System (BES) Cyber Systems. These standards collectively referred to as Supply Chain Standards, consist of Reliability Standards CIP-013-1, CIP-010-3, and CIP-005-6. Consistent with the risk-based framework of the NERC CIP Reliability Standards, the Supply Chain Standards are applicable to the highest-risk systems that have the greatest impact to the grid. When adopting the Supply Chain Standards in August 2017, the Board directed NERC to undertake further action on supply chain issues. Among other things, the Board directed NERC to study the nature and complexity of cyber security supply chain risks, including those associated with low impact assets not currently subject to the Supply Chain Standards and develop recommendations for follow-up actions that will best address identified risks.

To understand these risks better, NERC collected data from registered entities pursuant to a request for data or information under Section 1600 of the NERC Rules of Procedure. NERC staff's analysis of the data collected showed that, while an individual compromise to any one low impact BES Cyber Asset location would generally be a localized event, a coordinated cyberattack with control of multiple locations could result in an event that has an interconnection wide BES reliability impact. The vast majority of transmission station and substation low impact BES Cyber Assets are at locations that have at most only one line greater than 300 kV or two lines greater than 200 kV (but less than 300 kV). Similarly, the vast majority of generation resource low impact BES Cyber Assets are at locations that have less than 500 MW. As such, an individual compromise to any one of these locations (transmission substations or generation resources) would generally be a localized event. However, a coordinated cyberattack with control of multiple locations could result in an event that has an interconnection wide BES reliability impact.

Based on the analysis of the data request, NERC staff recommended to the Board at its February 6, 2020 meeting that Reliability Standard CIP-003-8 be modified to include policies for low impact BES Cyber Systems to: (1) detect known or suspected malicious communications for both inbound and outbound communications; (2) determine when active vendor remote access sessions are initiated; and (3) disable active vendor remote access when necessary. The Board approved a [resolution](#) at this meeting endorsing this action. Currently, the Project 2020-03 (Supply Chain Low Impact Revisions) standard drafting team is developing standards modifications to address this resolution.

CIP-002 Resolutions

On May 14, 2020, the NERC Board adopted proposed Reliability Standard CIP-002-6. The proposed Reliability Standard CIP-002-6 addressed the recommendation from the Version 5 Transition Advisory Group to clarify the phrase “used to perform the functional obligations of the Transmission Operator (TOP)” in CIP-002-5.1a, Attachment 1, Criterion 2.12. Specifically, CIP-002-6 addressed the applicability of requirements to a Control Center owned by a Transmission Owner (TO) that performs the functional obligations of a TOP. The proposed criterion established an average MVA line loading based on voltage class for BES Transmission Lines operated between 100 and 499 kV. The aggregate weighted value of the BES Transmission Lines must exceed 6,000 to meet the minimum threshold established in Criterion 2.12. In meeting that threshold, associated BES Cyber Systems would be categorized as medium; those Control Centers that did not meet the threshold would have low impact BES Cyber Systems (if not already identified as high).

In light of recent cybersecurity events and the evolving threat landscape, the NERC Board took action at its February 4, 2021 to withdraw CIP-002-6. In doing so, the NERC Board approved the following resolutions:

***WHEREAS**, the Board adopted proposed Reliability Standard CIP-002-6 on May 14, 2020, in which a new criterion was proposed to address the applicability of the CIP Reliability Standards to Control Centers owned by Transmission Owners performing the functional obligations of a Transmission Operator;*

***WHEREAS**, recent cybersecurity events and the evolving threat landscape warrant additional caution regarding any criteria that may permit more entities to categorize BES Cyber System as low impact and therefore subject to fewer requirements in the CIP Reliability Standards;*

***NOW, THEREFORE, BE IT RESOLVED**, that the Board hereby withdraws the proposed Reliability Standard CIP-002-6, 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 resolution.*

***FURTHER RESOLVED**, that NERC Staff, working with stakeholders, is directed to promptly conduct further study of the need to readdress the applicability of the CIP Reliability Standards to such Control Centers to safeguard reliability, for the purpose of recommending further action to the Board.*

***FURTHER RESOLVED**, that NERC Staff, working with stakeholders, recognizing the complexity of the undertaking, is directed to*

expeditiously complete its broader review and analysis of degrees of risk presented by various facilities that meet the criteria that define low impact cyber facilities and report on whether those criteria should be modified.

FURTHER RESOLVED, that NERC Staff is directed to report to the Board on the status of this work on a quarterly basis until complete.

NERC staff will report on actions taken in response to the resolutions.

2021 State of Reliability Report

Action

Accept

Background

The State of Reliability Report (SOR) is prepared annually to provide objective, credible, and concise information to policy makers, industry leaders, and the NERC Board of Trustees (Board) on issues affecting the reliability and resilience of the North America BPS. Specifically, the report:

- Identifies system performance trends and emerging reliability risks,
- Determines the relative health of the interconnected system, and
- Measures the success of mitigation activities deployed.

The key findings and recommendations of the report serve as the technical foundation for NERC's range of risk-informed efforts addressing reliability performance and serve as key inputs to the ERO Reliability Risk Priorities Report prepared by the Reliability Issues Steering Committee. The metrics measured in the report address the characteristics of an adequate level of reliability.

In developing the 2021 SOR, NERC staff and the Performance Analysis Subcommittee continue to tailor content for the policy maker and industry leader audience. NERC management expects to issue the 2021 SOR in August. The review schedule below identifies key milestones for the report.

2021 State of Reliability Report Schedule	
Date	Description
August 12	Report presented to NERC Board of Trustees for acceptance
August 17	Report release (Target)

2021 ERO Reliability Risk Priorities Report

Action

Accept

Background

The RISC ERO Reliability Risk Priorities Report (RISC 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. The report builds off the [2019 ERO Reliability Risk Priorities Report](#), [initial risk identification and mitigation framework](#), the Emerging Risks survey, the Reliability Leadership Summit, as well as additional input from the RISC members and individual industry leaders. The RISC works diligently to leverage all information to build a cogent report. It is also incumbent on the RISC to measure the effectiveness and progress toward resolution of identified risks and the efficacy of mitigating activities.

Summary

The draft RISC Report was posted for comment June 9 through June 23, 2021. Comments received recommended minor adjustments to the 2021 Report, as well as general comments for consideration for future reports. Nelson Peeler, RISC Chair, will present the report for Board of Trustees (Board) consideration and acceptance at the August 12 Board meeting.



2021 ERO Reliability Risk Priorities Report

RISC Approved: July 8, 2021
Board Approved: xxx



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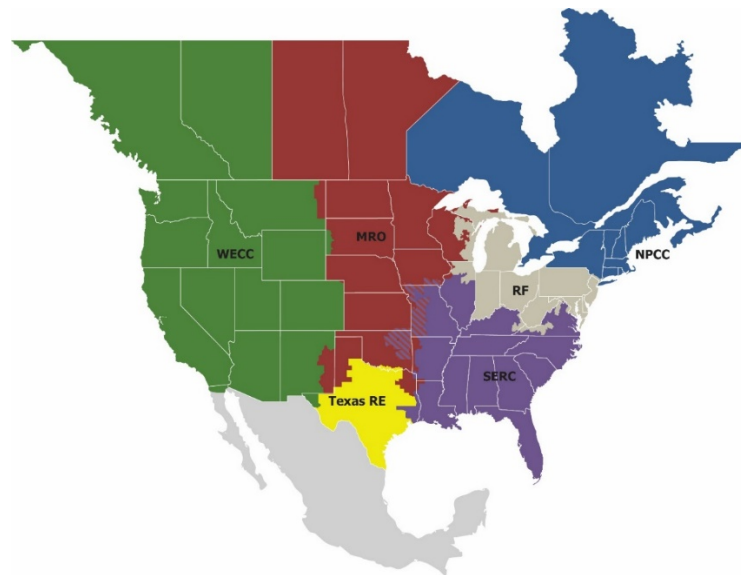
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities, is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security

Because nearly 400 million citizens in North America are counting on us.

The North American BPS is made up of six Regional Entity boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Reliability Issues Steering Committee

The Reliability Issues Steering Committee (RISC or Committee) is an advisory committee to the NERC Board of Trustees (Board). The RISC provides key insights, priorities, and high-level leadership for issues of strategic importance to BPS reliability. The RISC advises the Board, NERC committees, NERC staff, regulators, Regional Entities, and industry stakeholders to establish a common understanding of the scope, priority, and goals for the development of solutions to address emerging reliability issues. The RISC provides guidance to the ERO Enterprise¹ and the industry to effectively focus resources on the critical issues to improve the reliability of the BPS.

This ERO *Reliability Risk Priorities Report* (2021 RISC Report) presents the results of the RISC's continued work to strategically define and prioritize risks to the reliable operation of the BPS and thereby provide recommendations to the Board regarding the approach that NERC, the ERO, and industry should take to enhance reliability and manage those risks.

¹ ERO Enterprise is interpreted to mean NERC, the Regional Entities, and the technical committees of NERC.

Executive Summary

The primary objective of this *2021 ERO Risk Priorities Report* is to report on key risks to the BPS that merit attention and to recommend mitigating actions that align with those risks. This report differs from other ERO reports in that it is a forward-looking view of the BPS with the intent to provide industry with potential strategic direction to understand imminent risks and plan for their mitigation. For example, this is in contrast to the *State of Reliability*² report or event analysis reports, which review data from previous years or events to draw objective conclusions about events, emerging risks, and the appropriate monitoring for their mitigation. This year's report has been published earlier in the year versus previous reports to provide industry with additional time to plan and budget for potential action plans to mitigate risks.

This report reflects the collective opinion and conclusions drawn from the RISC membership regarding present and emerging risks and their respective priorities. The RISC reviewed and assembled information, from ERO Enterprise stakeholders and policymakers³ and focused subgroup work, to evaluate the current set of risk profiles to include the descriptors of the risks and recommended mitigating activities. Additional risks and potential mitigating activities were identified during the 2021 Reliability Leadership Summit (Leadership Summit) that was held in January 2021. The Leadership Summit participants were comprised of industry leaders, executives, and subject matter experts with keen perspective on the inherent and trending risks that affect BPS reliability.

For this report, the RISC also reduced the number of recommendations. This was completed by consolidating overlapping recommendations and removing recommendations that reflected ongoing activities; though these activities are important, they are already well underway and monitored as part of the ERO Enterprise Long-Term Strategy Plan⁴ and applicable NERC committee plans. This 2021 report builds on the 2019 report while recognizing progress but also underscoring that new risks continue to emerge and that the potential severity of risks can increase as well. Industry must continue to be vigilant and collaborative to stay in front of those emerging risks and develop mitigating strategies before risks become more impactful.

² 2020 *State of Reliability* report: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2020.pdf

³ Policymakers is used generally to mean any organization that can impact the legal or regulatory framework in place at various levels, including local, state, federal, and provincial governmental authorities in addition to various trades and lobbying organizations.

⁴ ERO Enterprise Long-Term Strategy Plan: [https://www.nerc.com/AboutNERC/StrategicDocuments/ERO%20Enterprise%20Long-Term%20Strategy%20\(Appeared%20December%202012,%202019\).pdf](https://www.nerc.com/AboutNERC/StrategicDocuments/ERO%20Enterprise%20Long-Term%20Strategy%20(Appeared%20December%202012,%202019).pdf)

The four risk profile sections of this report each provide a statement, descriptors, and recommendations for mitigating each risk type. The RISC recommends actionable mitigating activities that enable the ERO Enterprise and industry to use the composite risk profiles and the mitigating activities map for baseline and recurring evaluations. Grid transformation has broad implications across the other risk profiles as it catalyzes other changes and often amplifies their effects. As such, while the grid transformation risks and recommendations are broad in nature and overlap to some degree with the other risk profile sections, grid transformation provides an important framework for this report and its recommendations.

When possible, the RISC also identified the group or organization that it believes should lead the mitigating action. However, some recommendations do not present a clear owner or responsible party. In these cases, the recommendation is presented as a more generalized action item that can apply to numerous entities, including policymakers, industry, and the various organizations within the ERO Enterprise. The RISC did not assess resource needs for the mitigating actions that will be addressed with industry during the annual ERO Enterprise business plan and budget activities.

Additionally, the Committee evaluated risks based on impact to the BPS regardless of the source or location of the risk. To evaluate key risks to the system, the RISC recognized emerging issues emanating from different areas of the grid (e.g., resources like distributed energy resources (DER) that are not located or directly connected to the BPS). Operators and planners of the BPS are aware of the need to have a wide-area view of changes to the system in order to provide an understanding of external conditions that can affect them. Therefore, the risk profiles identify several risks where the BPS can be impacted at interfaces (e.g., customers distributed resources, resources located on the electric distribution system, natural gas delivery system, grid infrastructure for energy deliverability telecom system, water system). The RISC is illuminating external factors that increase BPS risk and offers recommendations to address those risks.

Common Themes and Emerging Trends

For risks that the Committee recommends active monitoring, a convergence of centralized themes and emerging trends is present. These themes and trends underscore not only the increasing interdependency between identified BPS risks but also an increase in potential magnitude of emerging risks. Common themes and emerging trends are indicated as follows:

- Interdependencies between industries and fuel types
- Increased security risks (both cyber and physical)
- The increase in natural gas and renewable variable energy generation coupled with the decline in nuclear and coal-fired generation and implications resulting on dynamic performance of the BPS
- The importance of emerging technologies and how to best plan and incorporate those into a reliable and secure BPS
- Significant changes to the grid require new models, more advanced tools, and grid infrastructure improvements for reliable integration
- Development of credible and centralized data sharing along with the right tools to proactively analyze system conditions is becoming more critical

Background and Introduction

This report documents the results of the RISC's continued work to identify key risks to the reliable planning and operation of the BPS and provide recommendations to mitigate those risks. This report includes recommendations regarding priorities to assist the Board and NERC management as well as industry and its stakeholders.

The RISC's efforts are both responsive to and in support of the Board's resolutions in connection with the initial 2013 RISC recommendations that direct continued work by the RISC to define and prioritize risks, develop mitigating activities, and identify accountable parties for those risks.

There are important linkages between the risk priorities and the recommended actions for the ERO Enterprise and industry. While the risk profile recommendations in this report are presented individually, there are interdependencies between many of the risks that present unique challenges to the electric industry. These interdependencies have been acknowledged in the report. Furthermore, many of these risks have been long recognized with commensurate NERC and industry monitoring for proper mitigation whereas others are newly emerging, requiring active management with a more aggressive immediate approach necessary for effective foresight and mitigation. The RISC acknowledges and appreciates the increased reliance of the Board and ERO Enterprise leadership on the results of the RISC's activities as an input for the ERO Enterprise's Long-Term Strategy Plan and NERC's Business Plan and Budget.

The RISC participants include representatives from the NERC committees, the Member Representatives Committee, and "at large" industry executives. The observations, findings, and guidance presented in this report include input from industry forums, trade associations, and other industry groups through multiple channels. The RISC also received feedback through both the Leadership Summit and the RISC Emerging Risks Survey.

This report relies on and extends the comprehensive assessment and corresponding recommendations to the Board made in November 2019 that have been updated and refined. This report and recommendations also reflect discussions with representatives from the NERC committees and the many technical reports and assessments conducted by NERC and industry.

ERO Collaboration

The RISC has entered into a bilateral communication protocol (framework) with NERC's Reliability and Security Technical Committee (RSTC) whereby the RISC will communicate identified risks and mitigating activities, and the RSTC will work with industry to implement strategic plans for executing those plans and developing commensurate time lines around those activities.

This framework is meant to guide the ERO in the prioritization of risks and provide guidance on the application of ERO policies, procedures, and programs to inform resource allocation and project prioritization in the mitigation of those risks. Additionally, the framework accommodates measuring residual risk after mitigation is in place that enables the ERO to evaluate the success of its efforts in mitigating risk that provides a necessary feedback for future prioritization, mitigation efforts, and program improvements.

The successful reduction of risk is a collaborative process between the ERO, industry, and the technical committees including the RSTC and the RISC. The framework provides a transparent process using industry experts in parallel with ERO experts throughout the process—from risk identification and deployment of mitigation strategies to monitoring the success of these mitigations.

Six specific steps have been identified that are consistent with risk management frameworks used by other organizations and industries:

1. Risk identification and validation
2. Risk prioritization
3. Remediation mitigation identification and evaluation
4. Mitigation deployment
5. Measurement of success
6. Monitoring residual risk

Each of these steps will require process development, including stakeholder engagement, validation/triage approaches, residual risk monitoring, ERO's level of purview over a risk, etc. The following provides additional detail for each specific step:

- 1. Risk Identification and Validation:** As mentioned above, the ERO identifies risks by using both leading and lagging approaches. The RISC biennial risk report and long-term and seasonal reliability assessments (leading) have successfully brought together industry experts to identify and prioritize emerging risks as well as to suggest mitigation activities. A partnership between the ERO leadership and both the RISC and RSTC enables input from the ERO program areas as well as industry forums and trade associations to provide additional context in risk identification.

Once the ERO, NERC committees, forums, and/or industry subject matter experts identify and validate a risk, it is critical that the corresponding recommendation for mitigation describe, explain, and provide support for the basis for selecting the particular approach to mitigation. A template will be created that mirrors the standards authorization request template and requires an explanation of the risk, approach(es) for mitigation, and estimate of residual risk.

Risk Identification: The ERO has a number of ways that it identifies risks:

- ERO stakeholder supported technical organizations, industry forums, and associated subject matter experts
- Focused compliance monitoring activities
- Reliability and risk assessments
- Event's analysis
- State of reliability reports, including the analysis of availability data systems (e.g., battery energy storage systems, TADS, GADS, DADS, MIDAS)
- Frequency response, inertia, and other essential reliability service measurements
- Interconnection simulation base case quality and fidelity metrics
- RISC biennial risk report
- Regional risk assessments
- Communication with external parties, such as the Department of Energy (DOE), the Department of Homeland Security (DHS), Natural Resources Canada, Canadian Electricity Association (CEA), and Electric Power Research Institute (EPRI)
- Shared public and/or government intelligence with special emphasis on cyber security

Risk Validation: The ERO and industry subject matter experts continuously work together to validate risks to the reliable and secure operation of the BPS based on analysis of ongoing performance of the system (lagging). Validation of the magnitude and priority of the risks includes analysis from the ERO databases of system performance and event analysis. These outputs are generally covered in NERC's state of reliability reports. In addition, the risks are further validated through working with NERC committees and socializing them with forums, government, and research organizations. Leading risk validation requires analysis of system simulations, forecasts, and performance projections.

- 2. Risk Prioritization:** Prioritizing risks is accomplished through an analysis of their exposure, scope, and duration, as well as impact and likelihood. The primary sources of data used to support this analysis come from the Risk Identification step. Deciding if the risk requires near-term mitigation or continued monitoring is informed by technical expertise. Depending on the complexity of the risk, new models, algorithms, and processes may need to be developed to better understand the potential impacts of the risk, which is necessary to develop risk mitigation tactics. The process would be consistent with other risk management frameworks used by other industries and was recently successfully tested in collaboration with industry through a survey issued by the RISC that was based upon the risks that the group prioritized in early 2019.

An ERO risk registry and heat maps are being developed that encompass prior RISC report findings, ongoing technical committee activities, and the risks being monitored. This registry is expected to be completed by the end of the third quarter of 2021. Work plans of the technical committees will then be periodically reviewed to ensure that ongoing activities are tied to identified risks in the risk registry. Furthermore, if new risks emerge they can be added to the registry, and if it is deemed that the risks are sufficiently mitigated,

they will be moved to the monitored portion of the risk registry. As the RSTC develops its annual work plan and following the publication of the RISC biennial risk report the RISC and RSTC will review the risk registry to evaluate how completed work addressed these identified risks, whether any new risks have been identified by either committee that need to be added to the risk register, and document monitored risks that require no additional mitigation.

3. Remediation and Mitigation Identification and Evaluation: The right mix of mitigation activities is balanced against both the effective and efficient use of resources and the potential risk impact and likelihood. Furthermore, the risk tolerances needs to be balanced against potential impacts so that the remediation/mitigation plans can be developed accordingly. Determining the best mix depends on a number of factors:

- What is the potential impact or severity of the risk?
- How probable is the risk? Is it sustained, decreasing, or growing?
- Is the risk here today or anticipated in the next 3–5 years?
- How pervasive is the risk?
- Is mitigation expected to be a one-time action or ongoing?
- Have we had experience with events being exacerbated by the risks, or there is no experience, but the probability is growing (i.e. cyber or physical security)?
- Have previous mitigation efforts been deployed? If so, were they effective? Why or why not?
- What is an acceptable residual risk level after mitigating activities have been deployed?
- Is the risk man-made or by natural causes?
- Does the mix of mitigations vary based on jurisdictional or regional differences?
- Is the risk fully or partially within the purview of the ERO?

Input from and allocation of subject matter expertise through multiple sources is part of this consideration, including resources within the ERO and its stakeholders (such as standing technical committees and their subgroups or standard drafting teams). External parties are important sources as well, such as the North American Transmission and Generation Forums (NATF and NAGF), the North American Energy Standards Board, the Institute of Electrical and Electronic Engineers (IEEE), and EPRI to name a few.

Once a risk to the BPS has been prioritized according to its impact and likelihood, the ERO, NERC committees, forums, and industry subject matter experts can recommend and take on potential mitigation activities and assess their anticipated effectiveness. Coordination is key to avoid duplication and provide supportive rather than conflicting actions.

The ERO remains responsible for risks to the reliable and secure operation of the BES. Risk mitigation should still be followed by the ERO no matter which organization takes on activities. Examples of mitigation efforts include, but are not limited to, the following:

- Reliability Standards with compliance and enforcement for risks that are as follows:
 - Sustained, moderate to severe impact, and likely
 - Sustained, severe impact, and unlikely
 - Focused monitoring based on risk and in response to major events
- Reliability Guidelines for risks that are as follows:

- Sustained, low to moderate impact, and likely
- Lessons learned for risks that are as follows:
 - Sustained, low impact, and likely
- Assist visits for risks that are as follows:
 - Compliance-related
 - Focused on a very specific situation or configuration
 - Generally on specific industry or entity practices or conditions
- Analysis of Major Events for risks that are as follows:
 - Identified after a Major Event (e.g., Category 3 or higher, definitions can be found in the *2020 State of Reliability Report*)
 - Discreet/one-time, severe impact, unlikely
 - identified through recommended reliability improvements or best practices and lessons learned
- Analysis of “Off-Normal” Events for risks that are as follows:
 - Identified after an unusual operational condition has occurred and likely not a categorized event.
 - Discreet/one-time, moderate impact, unlikely
 - Identified through recommended reliability improvements or best practices and lessons learned
- Advisories, Recommendations or Essential Actions⁵
- Alerts⁶
- Technical Conferences and Workshops

When reviewing the type and/or depth of remediation and mitigation, a form of cost-effectiveness analysis may be considered to understand impacts and potential burdens. This analysis can then be compared to potential impacts of the risk.

- 4. Mitigation Deployment:** Mitigation projects will be deployed by the ERO and/or industry stakeholder groups as determined by the Mitigation Identification and Evaluation step. A specific mitigation plan would involve a suitable mix of the ERO policies, procedures, and programs discussed in Section I of the *Framework to Address Known and Emerging Reliability and Security Risks*⁷ These mitigations would be coordinated with Canadian, industry partners, and stakeholders.

⁵ LEVEL 1 (Advisories): Purely informational, intended to advise certain segments of the owners, operators and users of the BPS of findings and lessons learned; LEVEL 2 (Recommendations): Specific actions that NERC is recommending be considered on a particular topic by certain segments of owners, operators, and users of the BPS according to each entity’s facts and circumstances; LEVEL 3 (Essential Actions): Specific actions that NERC has determined are essential for certain segments of owners, operators, or users of the BPS to take to ensure the reliability of the BPS. Such essential actions require NERC Board approval before issuance.

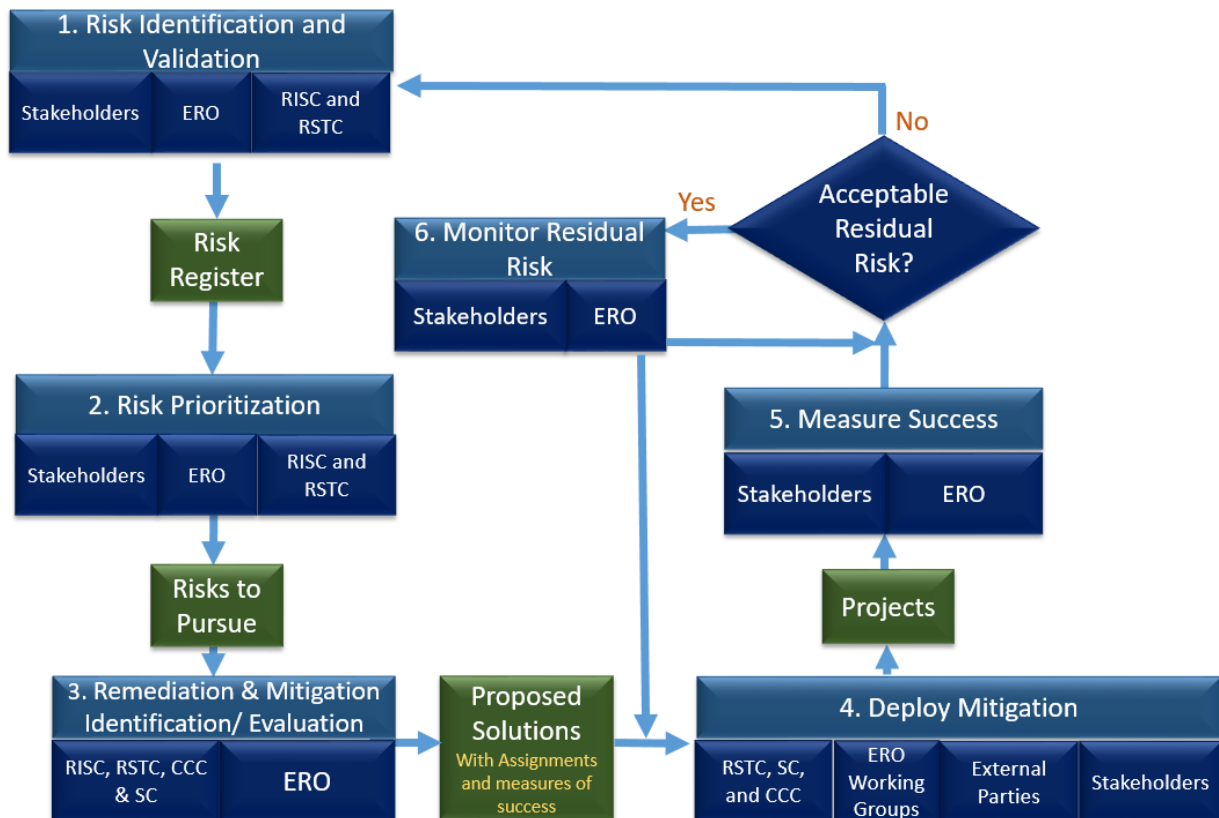
⁶ ALERT 1: Industry Action Requested—Fast moving or recently detected, impacts moderate, ALERT 2: Industry Action Required—Fast moving or recently detected, impacts moderate to severe, ALERT 3: Industry Action Mandatory—Fast moving or recently detected, impacts moderate to severe.

⁷ Framework to Address Known and Emerging Reliability and Security Risks:
https://www.nerc.com/comm/RISC/Related%20Files%20DL/Framework-Address%20Known-Emerging%20Reliability-Security%20Risks_Board_Accepted_Feb_2021.pdf

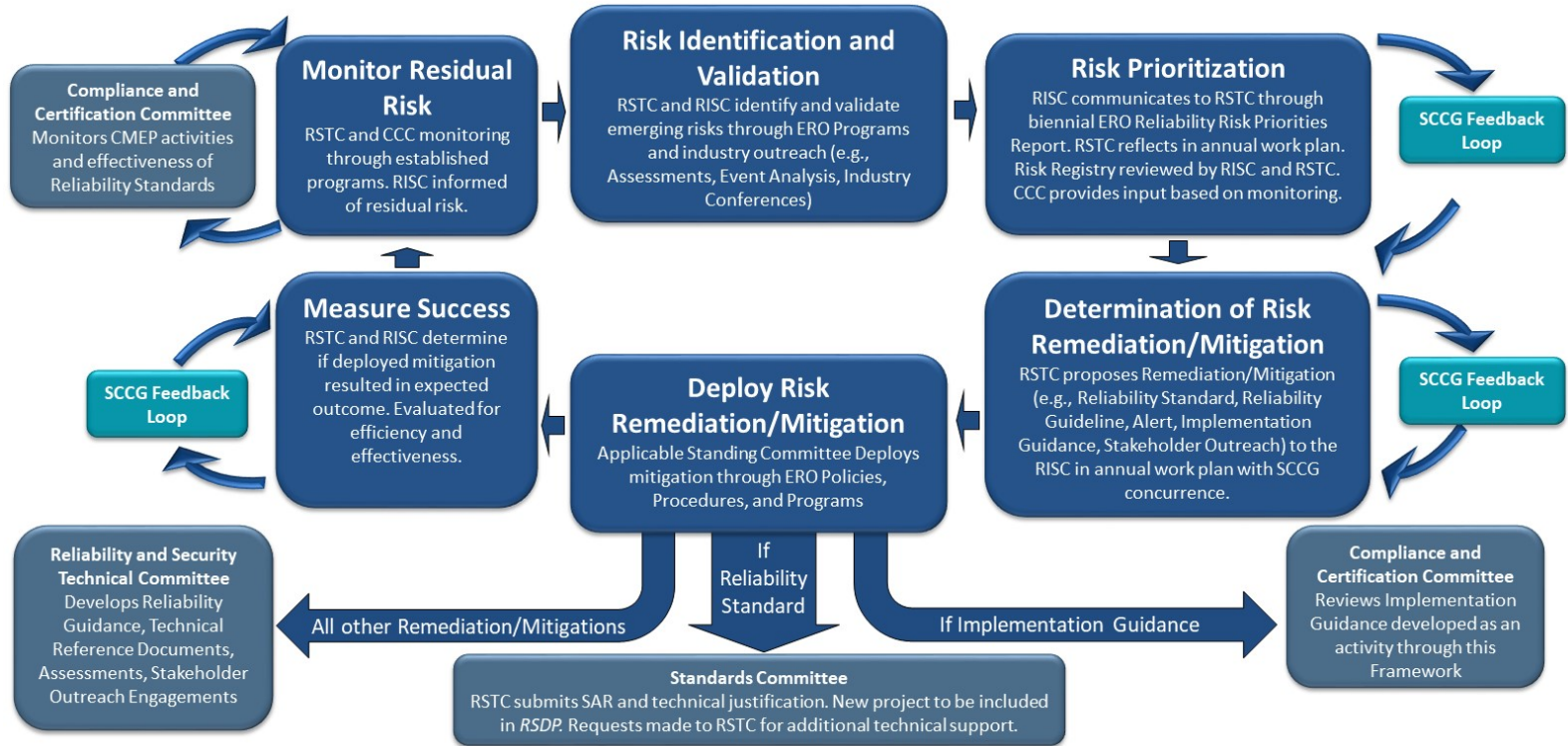
Occasionally, the Federal Energy Regulatory Commission (FERC) may order the development of Reliability Standards; this can occur in this step.

5. **Measurement of Success:** Once a set of solutions has been deployed, the effectiveness of the mitigation must be measured to determine if the residual risk has been reduced to an acceptable level. Effectively, if the desired level of risk mitigation is not met, the risk is fed back to Step 1, enabling a new prioritization of risks while factoring in historic mitigation and ensuring resource allocation is adapted to the changing risk landscape. This step also informs future mitigation efforts as industry and the ERO learn from the effectiveness of mitigation mixes for reducing risk. A partnership between the ERO leadership and both the RISC and RSTC will enable input from the ERO program areas, industry Forums and trade associations to provide additional context in the measurement of success. That said, criteria and other related processes should be developed for determining risk severity, likelihood, and mitigation activity effectiveness.
6. **Monitor Residual Risk:** Once the level of residual risk is at an acceptable level, the risk is monitored through ongoing performance measures to ensure that risk remains at acceptable risk levels. The residual risk should be monitored for progress and to ensure that the mitigations that are in place continue to address the risk (Step 5). At times, mitigations need to be deployed on a periodic basis (e.g., annual workshops, reliability guideline updates) to ensure continued success (Step 4). If the risk levels heighten or increased mitigation efforts are necessary due to the changing nature of the BPS, the risk can be fed back (Step 1) for prioritization and the development of additional mitigation approaches. The ERO, working with its industry partners, technical committees, stakeholders, and forums, would determine if the residual risk was acceptable or if additional mitigations required.

Sometimes, risks are identified and validated that require accelerated industry attention. The ERO risk framework can support quick implementation of industry awareness and mitigation activities. The following graphic provides a pictorial flow chart of the ERO’s risk management process.



This risk framework serves to ensure effective collaboration within the ERO and industry (see the following graphic⁸), and provides appropriate identification of critical industry risks, and an effective establishment of work plans that ensure mitigating activities are implemented, measured, evaluated, and reevaluated in a strategic and effective manner.



⁸ Graphic is from the *Framework to Address Known and Emerging Reliability and Security Risks* has been amended to clarify activities of the CCC.

Inputs to the Risk Profiles

Reliability Leadership Summit

On January 26–27, 2021, NERC and the RISC hosted its first fully virtual summit with leaders of the reliability community, including top industry executives, state and federal regulators, along with NERC and Regional Entity senior leadership. The summit focused on four specific areas: grid transformation, extreme natural events, security risks, and critical infrastructure interdependencies. Open panel discussions were held at the end of each day to address these and any other risks that required deeper discussion.

The panel discussions underscored the importance of conducting cross-sector coordination with other industries and covered such areas as the transformation of the grid; reliability and security impacts and considerations; lessons learned and unique challenges posed by extreme natural events and ways to prepare for them; cyber and physical security risks, their evolution, and impacts that could cause damage; and implications of the increased critical infrastructure interdependencies, and how to address the jurisdictional issues that need to be tackled to address the risks they present.

2020 RISC Emerging Risks Survey

In addition, a refined Emerging Risks Survey was issued in December 2020 (with responses due mid-January 2021) that sought stakeholder input on the continued relevancy of the 11 individually identified risks, the overall risk profile groups, and the mitigating activities within each of the profile groups as detailed in the *2019 ERO Reliability Risk Priorities Report (2019 Risk Report)*⁹. The objective of this year’s survey was to gauge if the RISC reports are providing the correct recommendations and level of information to ultimately have an effect on the likelihood and impact to the BPS risks.

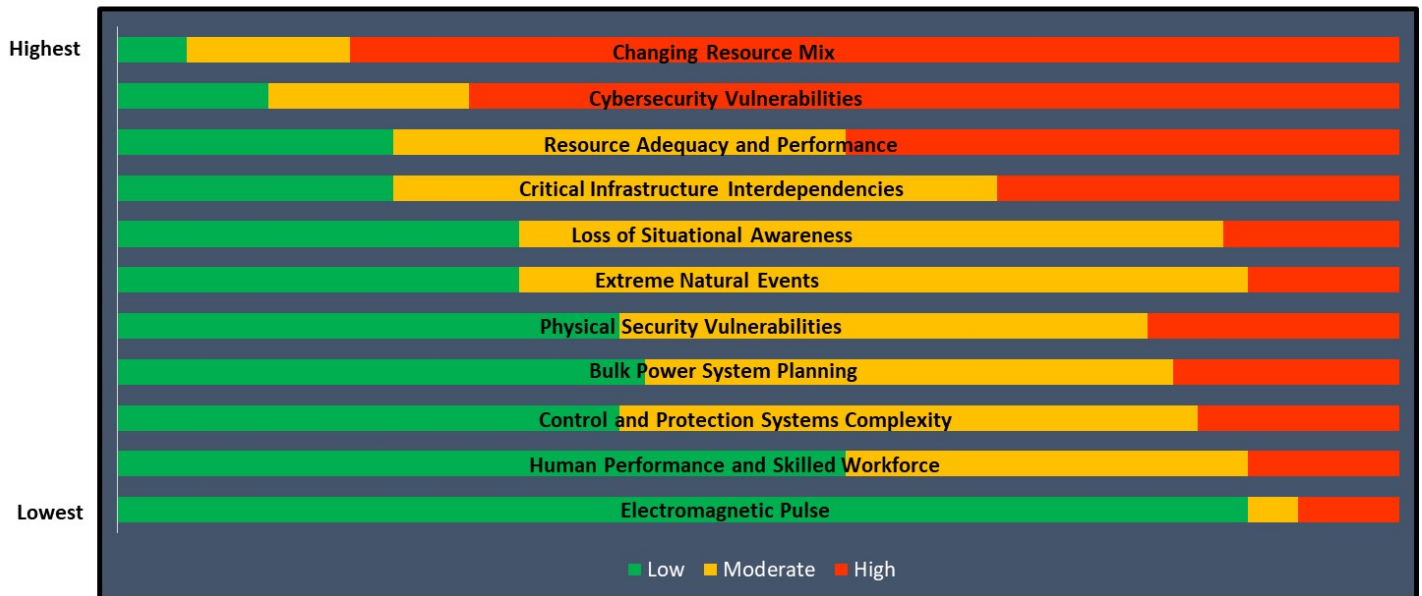
As part of the 2020 Emerging Risks Survey, respondents were asked if each of the 11 identified risks from the *2019 RISC Report* were still relevant and to rank them from 1–11 with 11 as highest and 1 as lowest. Each risk was identified as still relevant, and the responses were classified as Low (1–4), Moderate (5–8), and High (9–11) to provide an overall view of each risk.

The following chart reveals that Changing Resource Mix followed by Cybersecurity Vulnerabilities lead industry perception on the criticality of these risks. This information is useful for industry as a whole to prioritize and dedicate resources and budget. This 2021 Report has identified modified risks that will subsequently be incorporated into the 2023 RISC Emerging Risks Survey.



⁹ 2019 ERO Reliability Risk Priorities Report: https://www.nerc.com/comm/RISC/Related%20Files%20DL/RISC%20ERO%20Priorities%20Report_Board_Accpeted_November_5_2019.pdf

Risk Ranking



In addition, the below graphic depicts the classification of manage or monitor for each of the identified risks. Those risks identified as “**manage**” are emerging, imminent, and pose significant threats and where thorough strategic planning and industry collaboration are needed for risk mitigation. Those risks identified as “**monitor**” are risks that are of critical importance to BPS reliability but are considered well managed with established industry practices in place to mitigate and lessen potential impacts to BPS reliability.

The below graphic also indicates that extreme events should be monitored going forward, which may seem counterintuitive with recent events. However, extreme events is comprised of those events in which industry has a great deal of experience, such as hurricanes, tornadoes, derecho, etc. that industry has put forth emergency operating plans, usual aid programs, drills, and studies.

With the recent grid transformation, the resource mix is increasingly characterized as one that is sensitive to extreme, widespread, and long duration temperatures as well as wind and solar droughts. For example, having sufficient capacity does not necessarily mean that adequate energy will be available as widespread extreme temperatures are experienced. Neighboring organizations may not necessarily always support each other as they are all experiencing the same conditions.

These risks need to be better understood with mitigation approaches developed to manage them. In the future, the RISC may collect information from industry about extreme events for which a great deal of experience is available as well as for events that industry is gaining experience and understanding in due to the grid transformation.

Inputs to the Risk Profiles

Changing Resource Mix	Manage - 2019	Manage - 2021
Cybersecurity Vulnerabilities	Manage - 2019	Manage - 2021
Resource Adequacy and Performance	Manage - 2019	Manage - 2021
Critical Infrastructure Interdependencies	Manage - 2019	Manage - 2021
Loss of Situational Awareness	Manage - 2019	Monitor - 2021
Extreme Natural Events	Monitor - 2019	Monitor - 2021
Physical Security Vulnerabilities	Monitor - 2019	Monitor - 2021
Bulk Power System Planning	Manage - 2019	Monitor - 2021
Control and Protection Systems Complexity	Monitor - 2019	Monitor - 2021
Human Performance and Skilled Workforce	Monitor - 2019	Monitor - 2021
Electromagnetic Pulse		Monitor - 2021**

***Electromagnetic pulse was not individually surveyed as manage vs. monitor in the 2019 Risk Report.*

Stakeholder Comment

Finally, the report was posted for stakeholder comment in June 2021 and comments received were reviewed and incorporated as applicable.

Risk Groupings

Grid Transformation



- A. Bulk Power System Planning
- B. Resource Adequacy and Performance
- C. Increased Complexity in Protection and Control Systems
- D. Situational Awareness Challenges
- E. Human Performance and Skilled Workforce
- F. Changing Resource Mix

Security Risks



- A. Physical
- B. Cyber
- C. Electromagnetic Pulse

Extreme Natural Events



- A. Extreme Natural Events, Widespread Impact
 - GMD
- B. Other Extreme Natural Events

Critical Infrastructure Interdependencies



- A. Communications
- B. Water/Wastewater
- C. Oil
- D. Natural Gas

Though there are fundamental system characteristics that are critical to support BPS reliability (e.g., energy, frequency, voltage, ramping capability), the sources of each of these are rapidly changing. The resource mix is transforming from large, remotely-located coal-fired and nuclear power plants, towards natural-gas-fired, renewable, and distributed energy resources. The changing resource mix has resulted in a large magnitude of renewable variable energy resources, distributed energy resources, micro- and smart-grids, demand response technologies as well as an increasing reliance on just-in-time delivery of natural gas to fuel new generating capacity. This transformation is causing a different use of the power lines and changing dynamic performance of the system. In parallel, the potential for cyber and physical attacks has increased as the adoption of advanced technologies compounds the reliance on digital controls and communication systems.

Electrification of many sectors, such as transportation and technology, continues to increase and will in turn increase both demand for electricity and the importance of effective management of the significant changes the grid is presently undergoing. There are three main characteristics of this change: decarbonization, digitization, and decentralization. Decarbonization is occurring as a result of improved technologies as well as governmental mandates. Increased digitization poses potential challenges from a cyber-security stand point. Decentralization, including proliferation of microgrids and behind the meter generation, is another grid development that necessitates proper system planning and effective deployment of risk mitigation strategies.

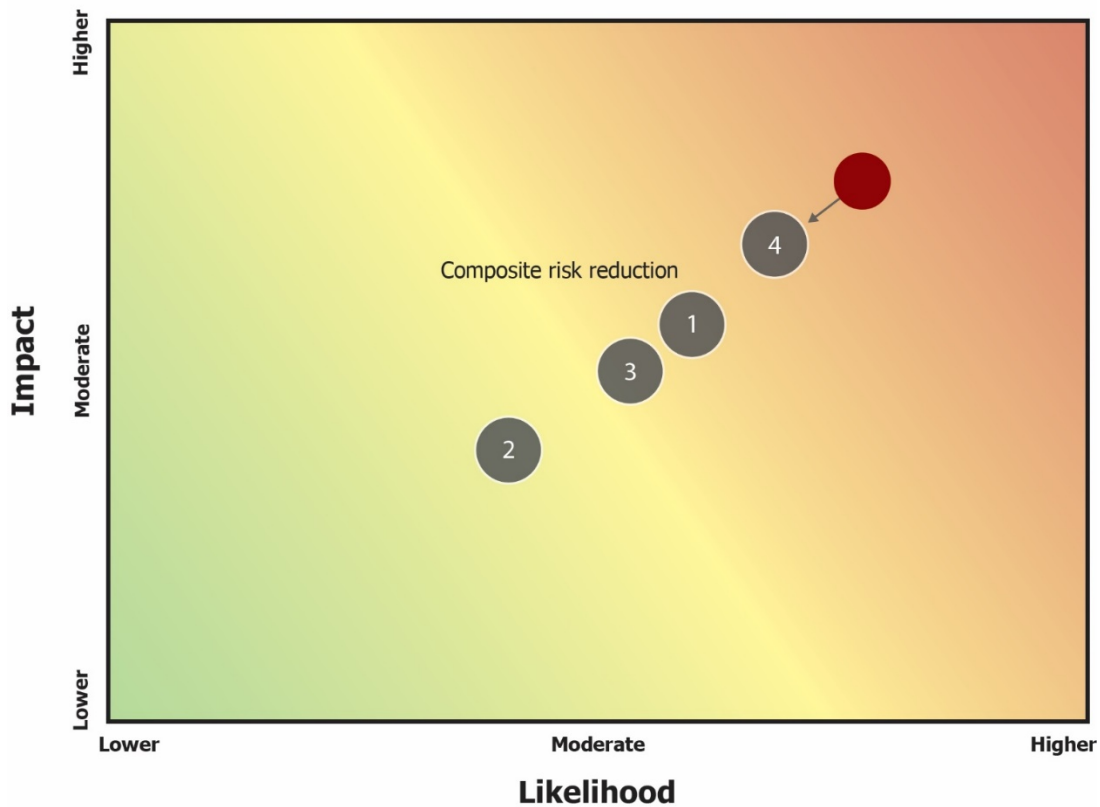
There are four significant evolving risk groupings, which are not independent from each other, that result from the previous mentioned electric industry developments. The **Grid Transformation** includes the shift away from conventional synchronous central-station generators toward a new mix of resources that include natural-gas-fired generation; unprecedented proportions of non-synchronous resources, including renewables and battery storage; demand response; smart- and micro-grids; and other emerging technologies which will be more dependent on communications and advanced coordinated controls that can increase the potential **Security Risks**. Collectively, the new resource mix can be more susceptible to long-term, widespread **Extreme Events**, such as extreme temperatures or sustained loss of wind/solar, that can impact the ability to provide sufficient energy as the fuel supply is less certain. Furthermore, there is an increase in **Critical Infrastructure Interdependencies**. For example, for natural-gas-fired generation, there is increased interdependency on delivery of fuel from the natural gas industry that also depends on electricity to support its ability to operate.

Each of these four risk groupings require steps to mitigate or control their impacts for the continued reliable planning and operation of the BPS. In this way, the goals of the transformation can be met while at the same time ensuring a reliable, secure, and resilient BPS.

The following graphics are based on the Emerging Risks Survey results where respondents ranked the activities as still being relevant and then scored each of them as high, medium, or low with regard to likelihood and impact reduction. These results were given an assigned numerical identifier to aid in the mapping with additional input from the RISC and are a visual demonstration of the potential or actual effects that the mitigating activities from the 2019 RISC Report can have if implemented (or did have when implemented) on both the likelihood and impact of baseline risks. This can be used as a potential tool for industry to compare mitigating activities, their individual potential effects, and best use of resources and budget. In addition, these results assisted in the development of the recommended mitigating activities in this 2021 RISC Report as provided below.

In the following and subsequent charts, successful mitigating activities would result in the risk migrating away from the red area and toward the green area (as shown by the direction of the arrow). The numbers identify the mitigating activities themselves as listed in the key below the chart. By implementing successful mitigation activities, survey results should ideally confirm that both likelihood and impact of the risk is reduced.

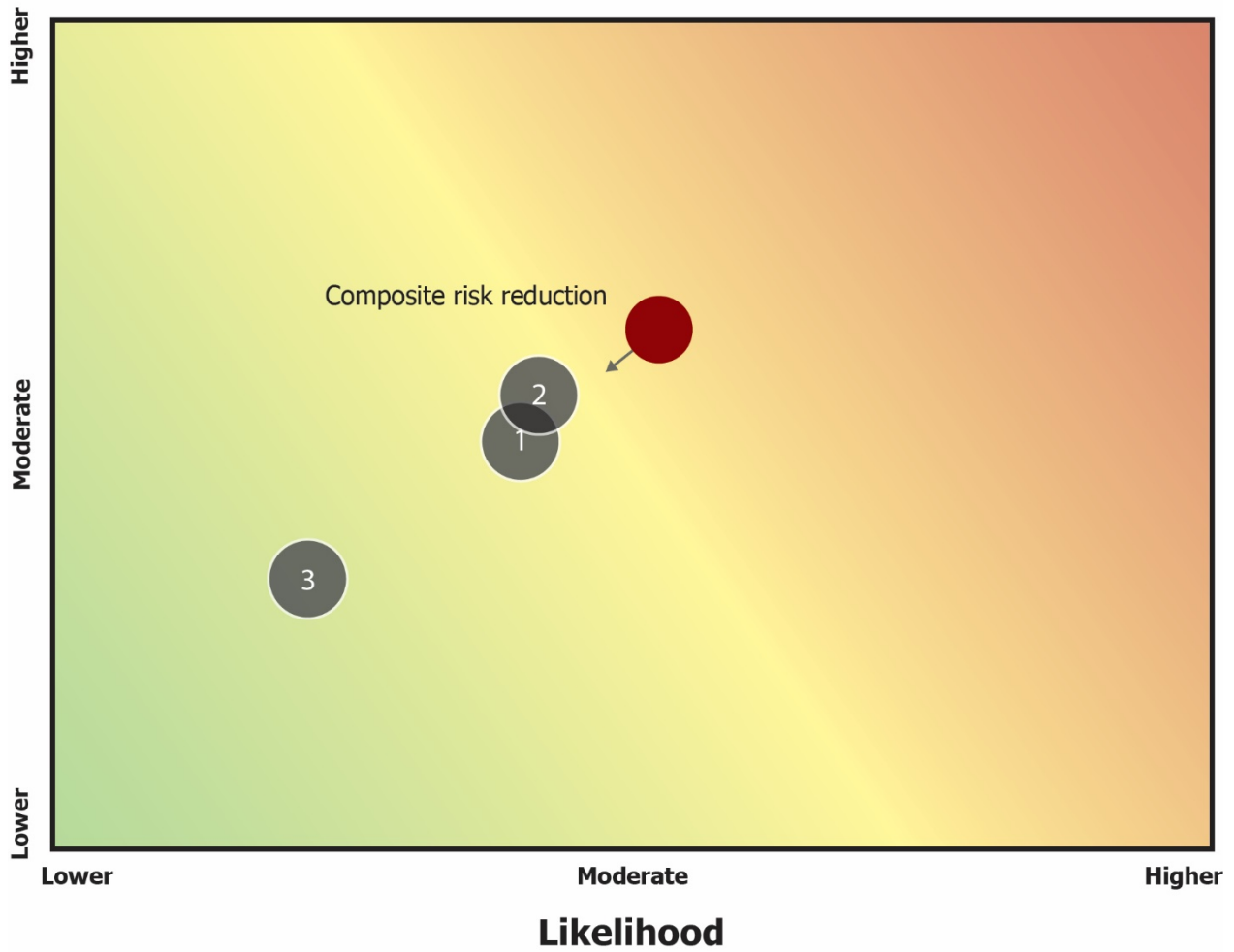
Grid Transformation



Mitigating Risks Key

- 1 Update data, modeling and assessment requirements to ensure valid and accurate results given resource and grid transformation (ongoing effort)
- 2 The technical committees should establish and implement an approach to evaluate the potential impacts of energy storage on reliability
- 3 Improve inverter-based resource BPS interconnection and operation and stay abreast of new technologies, such as storage/hybrid resources
- 4 Ensure sufficient operating flexibility at all stages of resource and grid transformation

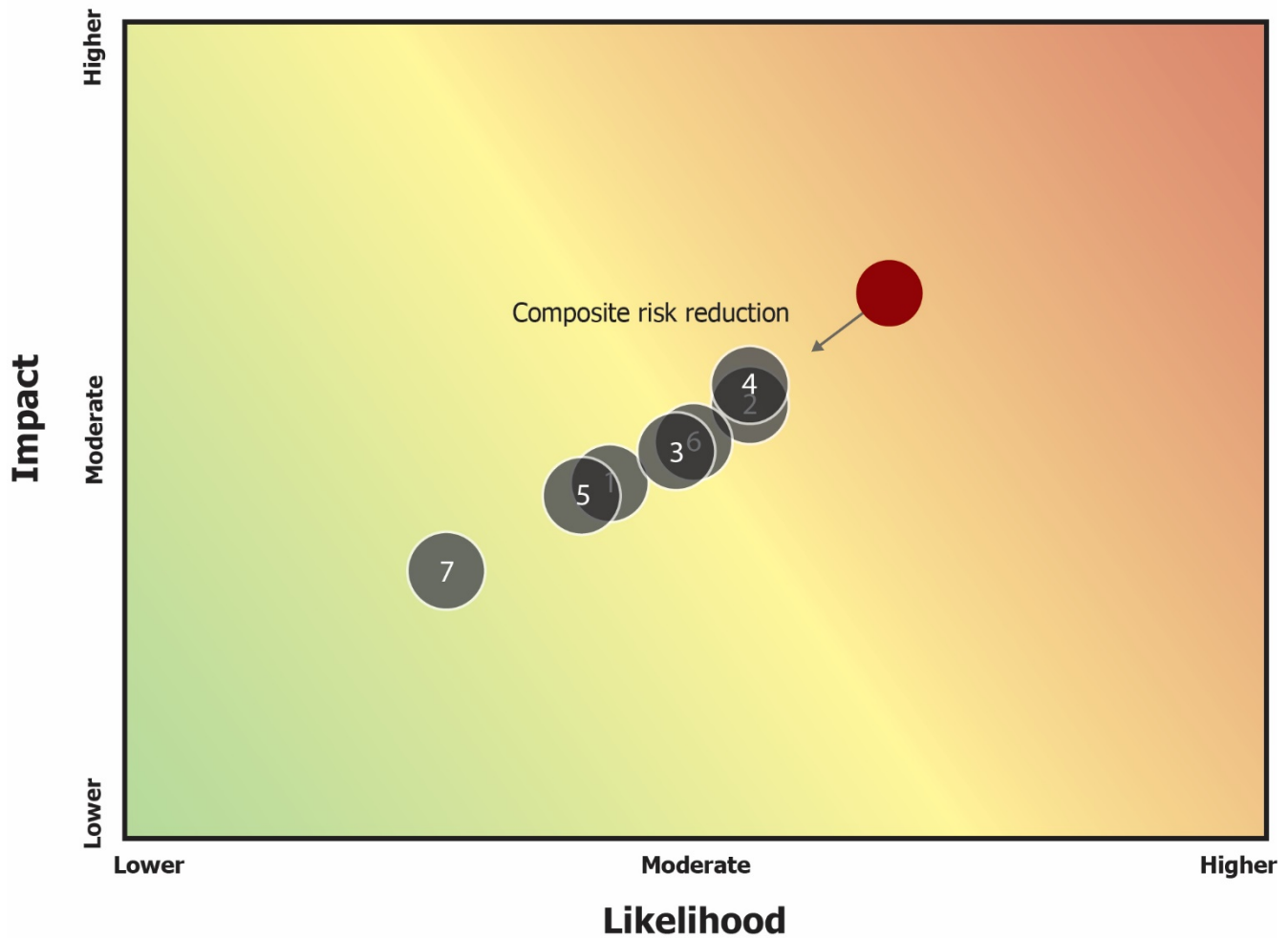
Extreme Events



Mitigating Risks Key

- 1 Special assessments of extreme natural event impacts, including capturing lessons learned, creating simulation models, and establishing protocols and procedures for system recovery and resiliency
- 2 Development of tools for BPS resiliency
- 3 Understanding of geomagnetic disturbance events on BPS

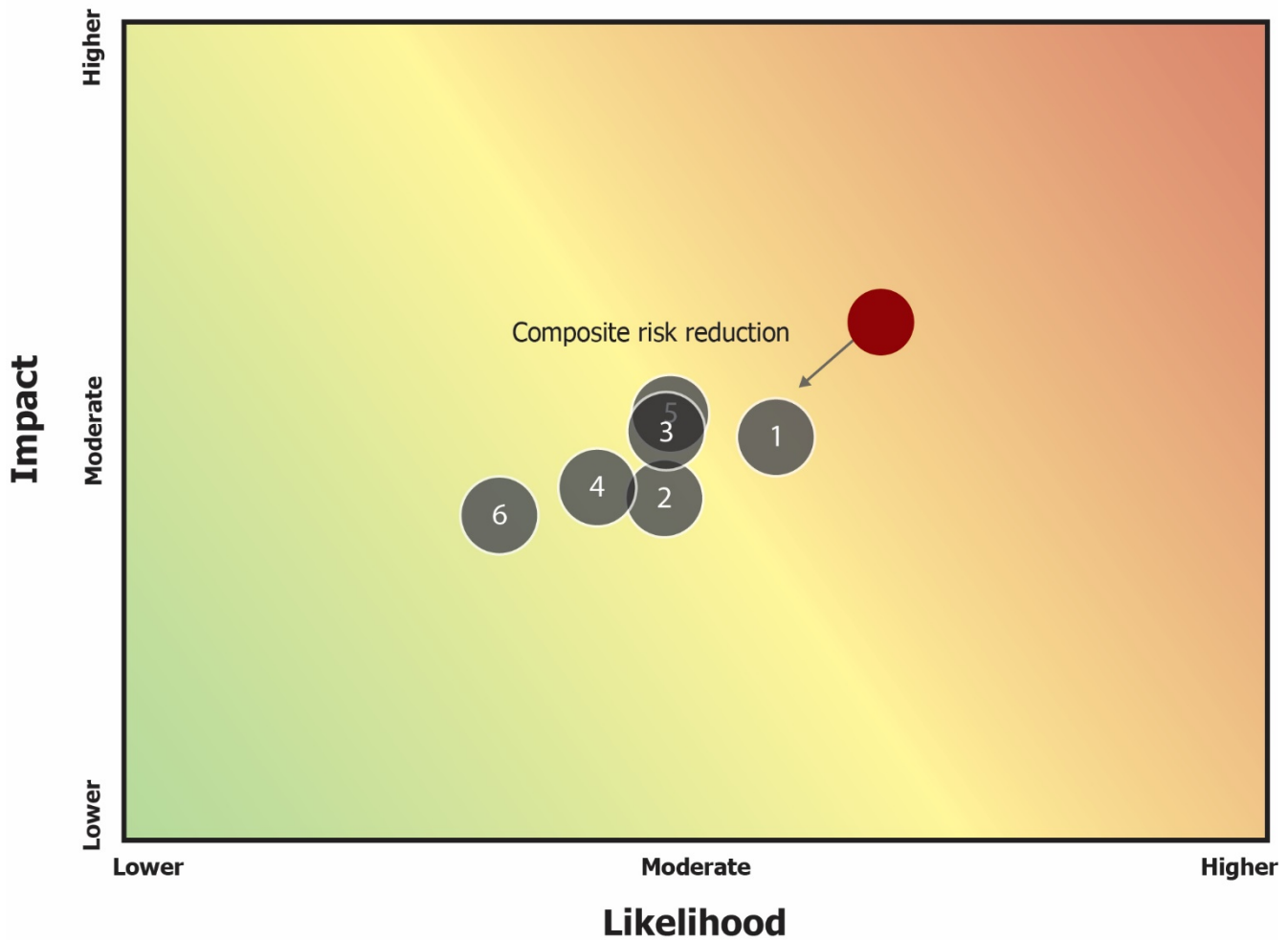
Security Risks



Mitigating Risks Key

- 1 NERC, in collaboration with industry, should evaluate the need for additional assessments of the risks of attack scenarios (e.g., vulnerabilities related to drone activity, attacks on midstream or interstate natural gas pipelines or other critical infrastructure)
- 2 The (E-ISAC) should encourage continued industry efforts on workforce cyber education to raise awareness of methods and tactics used by cyber attackers (e.g., email phishing, credential theft)
- 3 NATF and NAGF should develop supply chain cyber security superior practices
- 4 E-ISAC should execute a long-term strategy to improve cyber and physical security information-sharing, protection, risk analysis, and increase engagement within the electric sector as well as with other ISACs
- 5 NATF, NAGF, Trades Associations, and E-ISAC should develop tiered security performance metrics. Such metrics would track and evaluate events and use predictive analysis to identify and address prospective vulnerabilities on a risk prioritized basis
- 6 NERC should facilitate the development of planning approaches, models, and simulation approaches that reduce the number of critical facilities and mitigate the impact relative to the exposure to attack
- 7 NERC’s EMP taskforce should highlight key risk areas that arise from the EPRI’s EMP analysis for timely industry action

Critical Infrastructure Interdependencies



Mitigating Risks Key

- 1 NERC, in collaboration with industry and industry partners, should identify and prioritize limiting conditions and/or contingencies that arise from other sectors that affect the BPS
- 2 NERC and industry partners should host strategic interactions among critical infrastructure partners (e.g., industry and regulators) to identify and align on mutual priorities
- 3 NERC and industry partners should increase emphasis on cross-sector considerations in industry drills (e.g., NERC Grid-Ex, Department of Energy (DOE) drills, utility exercises (e.g., Southern California Edison (SCE) Resilient Grid Exercise))
- 4 NERC should evaluate the need to conduct special regional assessments that address natural gas availability and pipeline impacts under cyber and physical attack scenarios
- 5 EPRI and the DOE should continue their work on communication alternatives but also the use of same or similar technologies for critical SCADA data. New technologies should be explored that could assist in providing unique and hardened back-up telecommunication methods for the most critical data
- 6 NERC and industry partners should conduct various meetings and conferences to highlight the importance of cross-sector interdependence and coordination, such as the NERC Reliability Summit, NATF/EPRI resiliency summits, and FERC/DOE technical conferences

Risk Profile #1: Grid Transformation



Statement of the Risk

Changes in generating resources, fuel sources and fuel deliverability, energy deliverability to the load, and load characteristics are accelerating, challenging the traditional methods of long-term planning, short-term planning and real-time operations.

Regulatory and socioeconomic policies for grid transformation have significantly increased since the prior report and were initially largely driven by the decarbonization goals of states, utilities, and customers. Now, the new federal administration appears likely to further accelerate the significant evolution of grid resources with infrastructure improvements. The shift away from conventional synchronous central-station generators toward a new mix of resources continues to challenge generation and grid planners and operators. This new paradigm of the resource mix includes natural-gas-fired generation; unprecedented proportions of non-synchronous resources, including renewables and battery storage; demand response; smart- and micro-grids; and other emerging technologies. Recent events have raised awareness of how extreme events and fuel supply interdependencies may result in energy sufficiency issues for all types of resources. Knowing this, it becomes even more important to revisit resource adequacy concepts, modeling methods, operating practices, and the data that are needed for reliable planning both on generation and transmission (i.e., modeling and operation of the rapidly transforming grid). Looking forward, policy requirements to decarbonize the energy systems, changes in the economics of various energy sources, deployment of storage in many configurations, participation of distribution-connected resources, and the aging of existing infrastructure will alter the nature and dispatch of generation and lead to further resource and grid transformation.

Grid transformation has broad implications across the other risk profiles as it catalyzes other changes and often amplifies their effects. As such, while the grid transformation risks and recommendations are broad in nature, they provide a vital framework for all of the RISC recommendations in this report.

This transformation presents a number of potential challenges and opportunities when it comes to reliability of the BPS as detailed in the risk descriptors below.

Descriptors of the Risk

- **Changing Resource Mix, Bulk Power System Planning, and Resource Adequacy and Performance**
 - **Resource Adequacy Assessment Scopes—Network Realities vs. Political Boundaries:** Current resource planning and resource adequacy assessments are often performed with a limited scope (political or utility boundary) that does not take into account potentially significant electrical impacts and interactions due to the interconnected nature of the bulk grid outside of that limited scope. The result may be resource, energy, and/or transmission capacity insufficiencies in an operational timeframe.
 - **Consideration of Weather, Forecasting and Combined Effects:** With the changing resource mix, traditional analytical methods do not fully account for system characteristics associated with the uncertainty of variable resources, interactions of inverters and dynamic power system devices, declining performance of fossil-fueled resources that are nearing retirement, uncertainties associated with emerging technologies, and increased sensitivity to widespread common weather (such as extreme temperatures). The result may be resource, energy, and/or transmission capacity insufficiencies in the operational horizon. Forecasts of weather and energy demand as well as the implications of such forecasts on the increasingly interrelated combined effects with resources, fuel supplies, and extreme events must continue to be improved and advanced.
 - **Resource Adequacy Does Not Necessarily Equal Energy Adequacy:** Resource adequacy assessments have mostly focused on generation and transmission capacity available to serve peak demand. With the previous resource mix, real-time energy adequacy was assumed under that capacity umbrella and transmission was not highlighted as a requirement; however, recent extreme temperature events have shown energy adequacy to be a new dimension of risk given the changing resource mix and actual performance of the grid versus assumptions used in previous resource mix studies.
 - **Potential Impact on Essential Reliability Services:** Transformation of the resource mix can alter the provision of and need for essential reliability services and other ancillary services for BPS reliability and system operations, such as voltage control and reactive support, frequency response, and ramping/balancing. Restoration services, such as blackstart capabilities and procedures, could be affected as well. Organized and bilateral markets must recognize and incentivize resources that are capable of providing essential reliability services to ensure reliable operations.
 - **Technology with Different Design and Performance Characteristics:** The continued integration of large amounts of new resource technologies (e.g., DERs, grid and distribution system-connected inverter-based resources, energy storage) could lead to inaccurate forecasting of anticipated net demand. The dynamic and transient performance and response of these technologies also brings new challenges. Changing technology also has implications for control and protection systems complexity.
 - **New Data and Information Requirements:** The need for data and information about new and changing resource characteristics must be incorporated into the long-term planning, operational planning, and operating time horizons. Furthermore, this integration can also result in other planning and operational challenges if these resource additions are not observable, predictable, or are otherwise not accounted for. Some of this new information will be from nontraditional sources (e.g., DERs, inverter operating parameters) that may present challenges to those responsible for incorporating the information into models representing future conditions.
 - **Energy Storage Technologies:** Storage capabilities and uses will likely transform both distribution and bulk system operations. Whether in combination with renewable or conventional resources or connected to distribution systems or the BPS, storage and hybrid technologies will further magnify the pace of innovation and the evolution of resource capabilities during both steady state and transient conditions.
 - **Fuel Supply Considerations:** Fuel sourcing and disruption, such as from weather events and other extreme natural events, are driving new scenarios and case studies and broadening the range of

dependencies for reliability planning and operations. Fuel constraints and environmental limitations might not be sufficiently reflected in current assessments of resource adequacy.

- **Resource Adequacy Elements Timeline Consideration:** In addition to fuel sourcing, other elements of resource adequacy (e.g., transmission development, generator retirements, pipeline construction, environmental permitting, right-of-way acquisition) may require long-lead time to assure future reliability and resource adequacy of the system. Various elements may also need to be carefully sequenced to ensure reliability throughout the transition, and the interrelated nature and contribution of transmission, generation, and fuel sources must be appreciated and considered in resource adequacy assessments, time lines, and deployments.
- **Ensuring Sufficiently Flexible Resources to Meet Demand:** With the expected volume of wind and solar resources and their characteristic fuel-driven commitment and dispatch capabilities as well as the characteristics of other resources that may constrain their near-term ability to respond, sufficient amounts of flexible resources will be needed to meet demand when the less flexible resources are unavailable. The flexible resources will need to be dispatchable within the forecasting period of the fuel-driven or less flexible resources becoming unavailable.
- **Coordination of DERs with the BPS:** Distributed generation and storage (including behind the meter DERs and other DER technologies) currently follow local interconnection requirements and operational protocols that pose potential challenges to the BPS from a planning and forecasting perspective as penetration levels increase.
- **Human Performance and Skilled Workforce:** The BPS is becoming more complex, and the industry will have difficulty staffing and maintaining necessary skilled workers as it faces turnover in technical expertise. The proliferation of entities providing services and grid transforming technologies will compete for available skilled workers
- **Loss of Situational Awareness:** Loss or degradation of situational awareness poses BPS challenges as it affects the ability of personnel or automatic control systems to perceive and anticipate degradation of system reliability and take preemptive action. Maintaining situational awareness will become increasingly complex as the numbers and types of resources expands from the BES to the distribution system.
- **Control and Protection Systems Complexity:** The interaction and performance of control systems during transient events, including the control systems in remedial action schemes (RAS) and other protection systems, must be understood to prevent new common-mode failures that may not have been anticipated (e.g., the inverter performance as demonstrated during the Blue Cut Fire and related events, misoperation of RAS logic and control systems, interdependencies of RAS operations in sequence and follow through).
- **Cybersecurity Risks:** With the expansion of resources and participants down to the consumer level, the number and types of cyber security risks will evolve and expand. Awareness of this threat, improved planning approaches to build in cyber robustness, and the application of best practices will be necessary to promote reliable operations.

Recommendations for Mitigating the Risk

As a result of this complex set of factors, the traditional methods of assessing resource adequacy (i.e., by focusing primarily on generating capacity, transmission and pipeline capacity, and fuel availability at traditional peak load times) may not accurately or fully reflect the ability of the new resource mix to supply energy and reserves for all operating conditions. Historic methods of assessing and allocating ancillary services (e.g., regulation, ramping, frequency response, voltage support during transient, recovery, follow through) may no longer ensure that sufficient essential reliability services and contingency reserves are available at all times during real time, next hour, and next day operations. Balancing and ramping concerns that up to now have been largely confined to limited locations will likely expand regionally as solar and wind generation continues to grow and provides a larger portion of the energy mix. Changes in resources will increasingly challenge concepts of available capacity in traditional integrated resource



Risk Profile #1: Grid Transformation

planning models and methods; this will likely lead to a need to revise resource adequacy, energy adequacy, and transmission adequacy concepts to assure reliability of the BPS in near-term to long-term planning horizons.

The combination of these many factors related to resource and grid transformation offer both challenges and opportunities as a result of the transformation and call for a planned set of NERC activities as described in the following action plan.

Resource and grid transformation will require new and updated tools, methods, and strategies that are used in planning, modeling, and operating the BPS. To best achieve those goals, the RISC encourages the following actions:

- **Ensure sufficient operating flexibility at all stages of resource and grid transformation:** System operators and planners should ensure that sufficiently flexible ramping/balancing capacity is available as a tool to meet the needs of changing patterns of variability and new characteristics of system performance. Traditional concepts of resource adequacy may need to evolve to consider adequacy and flexibility during all hours, including consideration of correlated outages, transmission availability, and common-mode fuel supply dependencies.
- **Update data, modeling, and assessment requirements to ensure valid and accurate results given resource and grid transformation (ongoing effort):** The RSTC should identify the information and modeling capabilities needed to ensure the efficacy of assessments while taking into consideration the complex and interrelated aspects of the ongoing transformation, including the evolving nature of resource adequacy itself. The ERO should continue to pay attention to settings of controllable devices, remedial action schemes, and power electronics installed to stabilize the system.
- **The RSTC should establish and implement an approach to evaluate the potential impacts and benefits of energy storage, hybrid/storage resources, aggregated DER resources, and other emerging technologies on reliability:** Work with industry stakeholders to use available information and experience to support an evaluation of these rapidly emerging and evolving technologies. It is important that the operators of these emerging technologies participate in the ERO process to provide input and implement these recommendations, especially at the distribution level.
- **Improve inverter-based resource BPS interconnection and operation and stay abreast of new inverter technologies:** The ERO Enterprise should continue its effort to address the recommendations of the Inverter-Based Resource Performance Working Group (IRPWG). Ongoing advances in inverter technologies, including those resulting from encouraging work of the IEEE P2800 equipment standard and grid-forming inverter research, should also be reflected in ongoing efforts of the IRPWG and related aspects of the ERO Enterprise. With future adoption of technical guidelines and equipment standards and soon with selective deployment of emerging grid-forming inverter technology when needed, inverter-based resources will make important contributions to BPS reliability during grid transformation.
- **The RSTC should develop methods, processes, tools, metrics, and/or standard authorization requests that are needed to address energy security.** Recent experiences have demonstrated that capacity alone, given the grid transformation, is not sufficient to ensure sufficient energy is available to serve consumer needs. Capacity analysis is vital but now must be buttressed with energy assessments to ensure that the system is planned and operated in a way that provides sufficient energy event during widespread, long-duration extreme conditions.

Risk Profile #2: Extreme Events



Statement of the Risk

Extreme events (e.g., storms, wildfire, extreme temperatures) cause a significant proportion of major BPS impacts. For example, NERC's *2019 State of Reliability* report¹⁰ noted weather was responsible for both Category 3 events (there were no Category 4 or 5 events) across the ERO Enterprise's footprint in 2018. Extreme weather events tend to be regional in nature. Natural events may affect BPS equipment, resources, or infrastructure required to operate the BPS. Certain events are unique to areas that they impact while others may occur in any area of the BPS. Planning studies confined to regional boundaries may not account for events that cross regional boundaries. Recent cold weather events (like in ERCOT, MISO, and SPP) as well as heat events (like the 2020 California event) underscore that not only do extreme events pose challenges due to the nature and frequency of the extreme event itself but that the grid transformation that is occurring also heightens the effects and complicates mitigation of an extreme event. Each type of event brings unique challenges from energy supply sufficiency, spare-parts availability, delivery, and restoration perspectives. Impacts from recent weather-related events have resulted in longer duration load loss and exacerbate human impacts due to the inability to access other needed critical infrastructure. Preparation and proactive planning of procedures and protocols are critical for utilities to assess and determine appropriate steps for both reliability and resiliency.

Other extreme events, such as pandemics and threats to national security, can pose challenges to grid reliability. Most notably, the Covid-19 Pandemic altered almost all aspects of management of the power grid in one way, shape, or form. For these reasons, the 2021 Risk Report reflects this profile as extreme events rather than specifically to extreme natural events as identified in the *2019 Risk Report*.

The performance and solutions relied upon historically are not always an indicator of future performance as events of the recent past and resulting outages indicate. The BPS now has new technologies and resources that have often not experienced extreme weather phenomena in the quantities seen on the BPS in the past. Furthermore, the performance of the evolving resource mix appears to be more sensitive to extreme events.

While past performance of the evolving resource mix does not signal that new technologies and resources are not capable of operating in extreme conditions, it does underscore the need for analysis as inverter based resources, distributed energy resources, and behind-the-meter generation become more prevalent. The precise risk of these having widespread impacts cannot yet be proven because the full penetration of these resources is yet to be realized; however, from a planning and preparation perspective, this cannot be ignored. Other risks described in this report can be "driven" by extreme events: grid transformation, cyber threats, and critical infrastructure interdependencies all have underlying issues that can be exacerbated with the advent of extreme events.

¹⁰ https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2019.pdf

Descriptors of the Risk

Various North American regions routinely incur severe events, such as hurricanes and extreme cold weather. While the risk of these events in those regions is high, the relative impact on the BPS is low. See the following examples:

- **Hurricanes** can cause widespread destruction to BPS equipment, degradation of communication capabilities, loss of load, and damage to generation resources. Recovery and restoration efforts can be hampered due to the size or scope of the storm as well as damage to interdependent infrastructure.
- **Tornados/Derecho** can cause localized destruction to BPS equipment, local degradation of communication capabilities, loss of load, and damage to generation resources. Recovery and restoration efforts can be hampered due to local damage to interdependent infrastructure.
- **Extreme Heat and Drought** can cause higher than anticipated demand, overloading and failure of BPS equipment, and degradation of resource availability. There can be limited water available for operating hydroelectric generation or reduced cooling water capacity. Drought can also be a precursor to wild fire risk as described in the next bullet.
- **Wild Fires** can be a direct threat to BPS equipment. Pre-emptive actions must be taken to de-energize equipment without causing additional cascading effects in areas where wild fire risk is significant.
- **Flooding** can occur in any area and in any season of the year. The impacts from flooding include mechanical damage to BPS equipment, degradation of clearances, fuel infrastructure, personnel access, and communications capabilities.
- **Extreme Cold Weather (Polar Vortices)** can cause higher than anticipated demand, overloading and stress failure of BPS equipment, increased reliance on interdependent critical infrastructures, and degradation of energy availability via resource mechanical failure or fuel supply interruption.
- **Ice Storms** can be a direct threat to BPS equipment. The impacts from these storms, combined with high winds, include infrastructure damage, personnel access, and communication capabilities.

Other types of severe natural events, though less likely, could have a higher impact given the potentially broader geographic footprint. See the following examples:

- **Earthquakes** are possible in many areas of the United States and Canada. Depending on the scope and magnitude of the event, mechanical damage may occur to BPS facilities and interdependent critical infrastructure (e.g., communications, fuel, transportation). The duration to recover from earthquakes could be long, and further assessment and coordination is required among utilities and the ERO Enterprise.
- **Geomagnetic Disturbances** can induce harmonic currents in BPS circuits and equipment. In addition, the impacts of these disturbances result in induced currents that may overheat transformers, result in relay misoperations, and increased reactive demand or damage to reactive resources. Geomagnetic disturbance events can also affect communications capabilities, fuel delivery, and GPS systems.
- **Pandemics** such as Covid-19 forever altered the way the BPS is operated. Effective telecommuting and cloud-based data exchanges enabled the grid to almost seamlessly continue reliable operation, resulting in no major disruptions to power deliveries. However, this new paradigm also underscores the necessity to maintain proper controls and protocols for security around both systems and human capital.
- **National Security Risks** such as civil unrest, riots, and other events could create potential issues around physical security of the BPS as well as safety of critical personnel necessary to carry out the actions needed to maintain the reliable operation of the BPS.

Recommendations for Mitigating the Risk

Extreme events and their potential impacts on BPS reliability should be monitored and addressed to maintain reliability and improve resiliency. Based on uncertainties predicting some events, it is important for operations and planning personnel to remain vigilant and prepare for high-risk seasons by learning from prior events, practicing recovery efforts, and anticipating impacts of an event to critical infrastructure. Seasonal reliability assessments should consider how more prolonged and widespread natural events may stress the system. Sufficient capacity and energy is needed to prepare for, operate, or when necessary, restore the BES. NERC and industry have taken actions to mitigate some of these risks by recent efforts in developing a Cold Weather standard for generators, the development of a joint NERC/WECC guide on effective management of wildfire, and the formation of the Energy Resource Adequacy Task Force. Further, certain regions may become more dependent on neighboring regions if greater than anticipated forced generator outages occur. These dependencies should be identified.

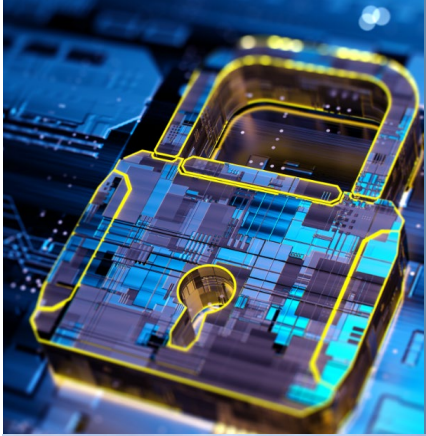
In order to continue the efforts toward mitigating the effects of extreme events, the RISC encourages the following actions:

- **Special assessments of extreme event impacts, including capturing lessons learned, creating simulation models, and establishing protocols and procedures for system recovery and resiliency:** The ERO Enterprise should conduct detailed special assessments of extreme event impacts by geographical areas that integrate the following:
 - Critical Infrastructure interdependencies (e.g., telecommunications, water supply, generator fuel supply)
 - Analytic data and insights regarding resilience under extreme events

Based on those assessments, the ERO Enterprise should develop detailed special assessments on possible mitigation plans and provide a roadmap for their implementation. The roadmap should include specific protocols and procedures for system restoration and system resiliency.

- **Development of tools for BPS resiliency:** The DOE is in the process of developing the North American Energy Resilience Model to evaluate both static, dynamic, and real time scenarios that affect grid reliability. NERC should continue to work with the DOE on this effort to ensure a robust tool that can be used industry wide to evaluate potential threats to generation, transmission, and fuel supplies.
- **Understanding of geomagnetic disturbance events on BPS:** The ERO Enterprise should assist the industry to implement the necessary protocols and mitigation plans to reduce the risk and maintain reliability and security for the BPS.
- **FERC/NERC joint inquiry on cold weather outages in ERCOT, MISO, and SPP:** The ERO Enterprise should continue to work with FERC to better understand the root causes of the cold weather outages in ERCOT, MISO, and SPP. Actions in the final report, when released, should be implemented and facilitated by the ERO Enterprise. NERC should conduct analysis to determine the effects of the existing cold weather event to other cold weather events in the past and take into account the difference in the resource mix over time and the performance of those resources during these widespread extreme temperature events.
- **Regional coordination:** States should meet, discuss, and understand impacts to ensure they are a part of the resiliency discussion. This coordination will ensure the acknowledgement of roles in understanding the impacts and implementing mitigating activities.
- **Industry forums:** Forums should share and coordinate information sharing on best practices around resiliency efforts related to design considerations and identification and response to major storm events. Sharing experiences and best practices is critical.

Risk Profile #3: Security Risks



Statement of the Risk

Operational security is an essential element of a highly reliable BPS. Cyber and physical security are interdependent aspects as exploitation of either physical or cyber security vulnerabilities could be used to compromise the other dimension. Resultant impacts could cause asset damage, functionality loss, or limit the situational awareness needed to reliably operate or promptly restore the BPS. Additionally, the operational and technological environment of the BPS is evolving significantly and rapidly, potentially increasing the potential cyber attack surface. Sources of potential exploitation include increasingly sophisticated attacks by nation-state, terrorist, and criminal organizations. Vulnerability to such exploits are exacerbated by insider threats, poor cyber hygiene, supply-chain considerations, and dramatic transformation of the grid’s operational and technological environment. These transformative changes include convergence of information and operational technology, reliance on cloud-based technology, and potential workforce knowledge gaps. Additionally, automation and integration of operational technology networks are increasing the attack surface of cyber risk while the use of cloud-based hosting or services introduces the risk of code and/or data breach vulnerabilities through the use of third-party software and/or hardware.

Exploitation could occur directly against equipment used to monitor, protect, and control the BPS or indirectly through supporting systems, such as voice communications or interdependent critical infrastructure sectors¹¹ and subsectors (e.g., water supply and natural gas used for electrical power generation). A coordinated cyber and physical attack scenario that is potentially targeted to occur simultaneously with an extreme natural event could further impact reliability and/or complicate recovery activities. A man-made EMP event targeted at the BPS may impact operations and result in damaged equipment that may require extensive time to replace.

¹¹ <https://www.dhs.gov/cisa/critical-infrastructure-sectors>

Descriptors of the Risk

Whereas the incidence of both cyber and physical security attacks specifically targeted against the BPS have to date not shown any clearly increasing trend, recent threats in other industries underscore a need for increased vigilance and a much more concerted effort to develop counter-measures to prevent and/or recover from more serious attacks against the electric industry.

In order to continue the efforts toward mitigating the effects of security risks, the RISC encourages the following actions:

- **Physical Security Risks:** The nature and impact of physical vulnerabilities are better understood than other security risks (e.g., cyber or EMP). The impacts from significant physical attacks are likely to be more localized geographically. There is modest, ongoing evolution of the physical security risk via drones. The largest risk considerations are considered to be co-dependence with cyber security (e.g., computer controls for physical access) and the prospective impact of replacing long lead-time equipment (e.g., large power transformers) damaged during an attack.
- **Cyber Security Risks:** Exploitation of cyber security risks could arise from a variety of external and/or internal sources. Additionally, the operational and technological environment of the electrical grid is evolving significantly and rapidly and potentially increasing the potential cyber attack surface. Sources of potential exploitation include increasingly sophisticated attacks by nation-state, terrorist, and criminal organizations. Vulnerability to such exploits are exacerbated by insider threats, poor cyber hygiene, supply-chain considerations, and dramatic transformation of the grid's operational and technological environment. These transformative changes include convergence of information and operational technology, increased reliance on cloud-based technology, and potential workforce knowledge gaps. Additional areas of concern related to cyber security risks are noted as follows:
 - Potential for increasing cyber attacks across all sectors has increased; for example, the 2020 SolarWinds and 2021 Colonial pipeline attacks accentuate supply chain vulnerabilities as well as threats from both foreign actors and domestic adversaries.
 - Artificial intelligence and machine learning can also be used as tools that cyber criminals employ.
 - The potential trend toward virtualization and the housing of critical systems in the cloud could expose the electric industry to additional risks for which industry must both account for and plan.
 - Supply chains are a targeted opportunity for nation-state, terrorists, and criminals to penetrate organizations without regard to whether the purchase is for information technology, operational technology, software, firmware, hardware, equipment, components, and/or services.
- **Electromagnetic Pulse Risk:** An EMP is a short-duration, high-energy burst that may be disruptive or damaging to electronic equipment. For security purposes, EMP refers to man-made sources. A high-altitude EMP (HEMP) is an electromagnetic pulse stimulated by a nuclear blast in the atmosphere and such action would likely be initiated by a nation-state and thus have clear national security implications. HEMP concerns include the large geographic footprint susceptible to the pulse, range of electric grid equipment at risk (generation, transmission, distribution, and load), and lack of definitive forewarning. Smaller, handheld devices are relatively limited in potential impact and can be considered analogous to the physical attack vector.

Recommendations for Mitigating the Risk

- NERC should facilitate the development of planning approaches, models, and simulation approaches that reduce the number of critical facilities and mitigate the impact relative to the exposure to attack.
- NERC, in collaboration with industry, should evaluate the need for additional assessments of the risks from attack scenarios (e.g., vulnerabilities related to drone activity, attacks on midstream or interstate natural gas pipelines or other critical infrastructure).
- NERC has been conducting an annual industry exercise that helps industry both prepare and react to potential BPS security threats. This exercise is known as GridEx, a distributed-play grid exercise that enables participants to engage remotely and simulates a cyber and physical attack on the North American electricity grid and other critical infrastructure. Led by NERC's E-ISAC, GridEx gives participants a forum to demonstrate how they would respond to and recover from coordinated cyber and physical security threats and incidents. Other activities that NERC and the E-ISAC have undertaken include enhancements to the Cybersecurity Risk Information Sharing Program as well as outreach that transcends borders and industries. NERC should expand the scope of GridEx to include and collaborate with cross-sector industries, such as natural gas, telecom, and water.
- The E-ISAC should encourage continued industry efforts on workforce cyber education to raise awareness of methods and tactics used by cyber attackers (e.g., email phishing, credential theft).
- E-ISAC should execute a long-term strategy to improve cyber and physical security information-sharing, protection, risk analysis, and increase engagement within the electric sector as well as with other ISACs.
- NATF and NAGF should develop supply chain cyber and apply security superior practices. NATF has developed and publicly issued a supply chain cyber security framework and detailed criteria that envelops applicable NERC standards and maps to existing security frameworks used by many vendors. NATF is leading an Industry Organizations Team comprised of electric utilities, vendors, and solution providers to help promote convergence on the use to the criteria and framework.
- Supply chain risk management and the threats from components and sub-components developed by potential foreign adversaries should continue to be addressed by NERC and industry with evaluation of CIP-013 standard for any needed improvements.
- Many additional efforts to develop cyber security tools are underway with NATF and trade associations. For example in 2020, both the American Public Power Association and the National Rural Electric Cooperative Association entered into new three-year cooperative agreements with the DOE to develop and deploy operational technology cyber security technologies to public power and cooperative utilities. The National Rural Electric Cooperative Association, with previous funding from the DOE, has developed a set of tools (Essence 2.0) that will help utilities rapidly identify cyber security threats in operational technology systems. These types of efforts should continue.
- NATF, NAGF, trades associations, and E-ISAC should develop tiered security performance metrics. Such metrics would track and evaluate events and use predictive analysis to identify and address prospective vulnerabilities on a risk-prioritized basis. Security metrics are included in NATF 2021 work plan.
- NERC's EMP Taskforce should highlight key risk areas that arise from the EPRI's EMP analysis for timely industry action.

Risk Profile #4: Critical Infrastructure Interdependencies



Statement of the Risk

Significant and evolving critical infrastructure sector (e.g., communications, water/wastewater, financial) and subsector (e.g., oil, natural gas) interdependencies are not fully or accurately characterized, resulting in incomplete information about prospective BPS response to disruptions originating from or impacting other sectors or subsectors and resultant reliability and security implications. Furthermore, as there is increasing interdependencies between these critical infrastructures, impacts on one can have a rippling effect on another.

Descriptors of the Risk

- Recent BPS events have highlighted that sector interdependence is becoming more critical particularly during emergency events. Digital communications for electric system protection and control, and voice communications (particularly cellular), for emergency response and restoration are critical. Remote work arrangements by critical electric sector employees further underscores the need for seamless and uninterrupted communications during emergency events.
- Subsector interdependence continues to increase and has reached an inflection point with the natural gas subsector. Growing reliance on natural gas as an electrical generation fuel source creates the potential for common-mode failures that could have widespread reliability impacts. The dependence of BPS reliability on natural-gas-fired generation does not align with service priorities within the natural gas delivery system and weatherization requirements for natural gas gathering and delivery systems. Furthermore, the natural gas delivery system depends on reliable electric service to deliver natural gas at acceptable pressures, and the foreseeable growth and dependence of BPS reliability on natural-gas-fired generation does not align with the expected pace of pipeline development.
- The financial sector could also be impacted by major outages, resulting in failure to approve everyday transactions and provide the necessary financial capital needed to ensure restoration.
- Cross-sector and subsector implications and coordination are not routinely socialized or thoroughly tested during drills or fully understood by both industry participants and regulators
- State and federal governmental oversight and regulatory constructs differ widely among the sectors and subsectors, and this impedes information sharing and alignment on the criticality of service.
- Grid transformation also plays a significant role in evaluating critical infrastructure interdependencies. A grid that relies more on renewables and natural gas with less coal and nuclear may face different challenges. Furthermore, the reaction to extreme events that may have been managed in a particular way given the old resource paradigm must now be managed under an entirely different set of circumstances.
- The electric subsector is dependent on other infrastructures such as water, sewer, transportation roads, and communications. If they become unavailable due to widespread power outages this could impact the reliable operation of the BPS. Furthermore, electrified transportation will be challenged to bring materials, supplies and equipment supplies to areas with widespread outages (e.g., after a hurricane) which could hamper restoration efforts.

Recommendations for Mitigating the Risk

- NERC, in collaboration with industry and industry partners, should identify and prioritize limiting conditions and/or contingencies that arise from other sectors that affect the BPS.
- NERC and industry partners should host strategic interactions among critical infrastructure partners (e.g., industry and regulators) to identify and align on mutual priorities.
- NERC and industry partners should increase emphasis on cross-sector coordination in industry drills (e.g., NERC Grid-Ex, DOE drills, utility exercises (e.g., Southern California Edison Resilient Grid Exercise)).
- NERC should conduct special assessments that address natural gas availability and pipeline common mode failures.
- Electric and natural gas sub-sectors should create and enforce weatherization standards.
- The EPRI and the DOE should continue their work on communication alternatives but also the use of same or similar technologies for critical SCADA data. New technologies should be explored that could assist in providing unique and hardened back-up telecommunication methods for the most critical data.

- NERC and industry partners should conduct various meetings and conferences to highlight the importance of cross-sector interdependence and coordination, such as the NERC Reliability Summit, NATF/EPRI resiliency summits, and FERC/DOE technical conferences.
- NERC should communicate to every state and federal regulator of natural gas about the critical interdependence of this fuel source with the other infrastructure sectors.
- NERC should communicate to every state about the need for their intrastate natural gas infrastructure to explicitly classify power generation firm transportation services as critical and ensure its curtailment prioritization is ahead of non-essential firm commercial and industrial natural gas loads.
- NERC and industry partners should evaluate voice communication interdependencies and strategies for ensuring continuous communications during an emergency event particularly as remote working arrangements grow.
- NERC and industry partners should evaluate processes and assumptions around identification of critical loads in load shed and load restoration plans.
- NERC and registered entities should develop and study extreme event scenarios under a future resource mix to ensure that both generation and transmission systems can ensure that energy delivery is adequate to meet peak conditions in extreme event scenarios, also taking into account the interdependencies between power and other industries that may pose challenges.
- NERC and industry should consider the unavailability of other infrastructures, such as water, sewer, roads, and communications in their emergency plans.
- NERC and industry should develop seasonal extreme temperature energy management plans along with rolling 21-day operational planning plans that accommodate the ongoing weather forecasts and projections.

Semi-annual Review of the Achievements of the 2021 ERO Enterprise Work Plan Priorities

Action

Update

Background

The Board of Trustees (Board) approved the 2021 ERO Enterprise Work Plan Priorities (2021 Priorities) at its November 2020 meeting. The 2021 Priorities identify key accomplishments that align closely with the [ERO Enterprise Long-Term Strategy](#). Due to the recent extreme weather and cyber events in 2020-2021, the Board requested NERC staff re-evaluate the current priorities and provide recommended adjustments to address the following “big 3” areas:

1. Winterization
2. Energy Assurance
3. Cybersecurity

Summary

Management will provide an update on accomplishments in the first half of the year and revisions to the 2021 Priorities in light of recent events.

2021 ERO Enterprise Reliability Indicators

Action

Update

Background

The 2021 ERO Enterprise Reliability Indicators identify key reliability indicators that provide insight into the performance of the bulk power system (BPS) as well as emerging trends that may indicate potential opportunities or challenges prospectively. The Reliability Issues Steering Committee (RISC) reviewed the 2020 ERO Enterprise Reliability Indicators as part of their 2020 Work Plan and recommended several modifications to the indicators for 2021. The 2021 Reliability Indicators more accurately identify potential trends that may pose challenges to the BPS and include several more forward-looking indicators that can illuminate areas that may require further analysis.

Summary

NERC staff will provide an update on the status of the 2021 reliability indicators.

Personnel Certification Governance Committee Report

Action

Information

Summary

The Personnel Certification Governance Committee's (PCGC's) second quarter meeting was held on May 17-20, 2021 via WebEx.

Highlights from the May PCGC meeting include:

- Don Urban, ReliabilityFirst, announced he was leaving the group at the end of 2021.
- A request for nominations to fill an open position was posted and announced.
- PCGC requested Standards provide withdrawal of the PER-003 SAR to the Standards Committee.

Current items:

- The PCGC/Credential Maintenance Working Group (CMWG) Individual Learning Activity (ILA) Joint Task Force selected a vendor for the Credential Maintenance Research project.

Future items:

- PCGC/Credential Maintenance Working Group (CMWG) Individual Learning Activity (ILA) Joint Task Force will continue to work with the Credential Maintenance Research project vendor.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Agenda Item 7c
Board of Trustees Meeting
August 12, 2021

Reliability Standards

Quarterly Report

August 12, 2021

RELIABILITY | RESILIENCE | SECURITY



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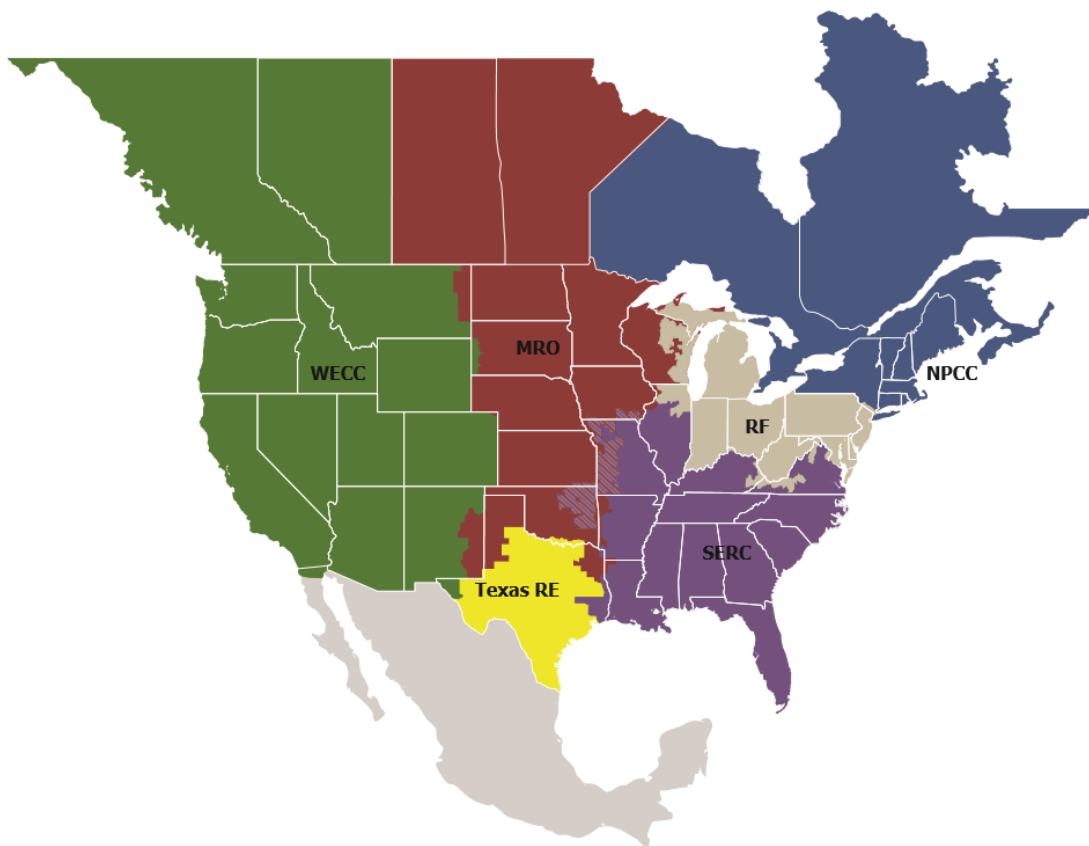
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Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is divided into six RE boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Region while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

Chapter 1: Standards Development Forecast

Board Forecast for Standard Projects in Active Development

The following projections reflect anticipated Board of Trustees (Board) adoption dates for continent-wide Reliability Standards.

August 2021

- Project 2019-02: BES Cyber System Information Access Management

November 2021 or after

- Project 2016- 02: Modifications to CIP Standards (virtualization)
- Project 2017-01: Modifications to BAL-003-1.1 (phase 2)
- Project 2019-04: Modifications to PRC-005-6
- Project 2020-02: Transmission-connected Resources
- Project 2020-03: Supply Chain Low Impact Revisions
- Project 2020-04: Modifications to CIP-012-1
- Project 2020-06 Verifications of Models and Data for Generators
- Project 2021-01 Modifications to MOD-025 and PRC-019
- Project 2021-02 Modifications to VAR-002
- Project 2021-03 CIP-002 Transmission Owner Control Centers
- Project 2021-04 Modifications to PRC-002-2
- Project 2021-05 Modifications to PRC-023

ANSI Reaccreditation

NERC filed for reaccreditation as a Standards Developer in accordance with the accreditation processes of the American National Standards Institute (ANSI) on July 1, 2019. NERC's request remains pending at this time.

Projects with Regulatory Directives

Table 1 below lists the current projects with regulatory directives. As of June 30, 2021, there is one standards-related directive to be resolved through standards development activities (not including non-standards related directives).¹

Project	Regulatory Directives	Regulatory Deadline
Project 2020-04: Modifications to CIP-012-1	1	N/A

¹ A second directive requires NERC to file quarterly updates in the project schedules for Project 2016-02 Modifications to CIP Standards and Project 2019-02 BES Cyber System Information Access Management. A third directive requires NERC to begin a formal process to assess the feasibility of voluntarily conducting BES operations in the cloud in a secure manner and to make an informational filing by January 1, 2022.

Periodic Review of Registered Ballot Body Qualification Guidelines and Rules for Joining Segments

NERC staff intends to present a series of revisions to Section 300 and Appendix 3B and 3D to the Board in 2021, after the proposed changes have been posted for public comment.

Trend in Number of Reliability Requirements

As NERC Reliability Standards continue to mature, NERC analyzes the trend in the total number of requirements in the United States since 2007 when Reliability Standards became enforceable.

The *US Effective Date Status/Functional Applicability*² spreadsheet was used to analyze the number of requirements based on the U.S. Effective Date for each requirement shown in the charts below. Figure 1 displays the Trend in Number of Requirements for Continent-Wide standards, while Figure 2 displays Regional Reliability Standards.³ Standards with variances were not included in the requirement count. Projections from projects that include standards currently under development, board adopted standards and board approved retirements are also included in the total number of requirements based on their projected effective or inactive date.⁴

The trend for total number of requirements indicates a constant flat trend line for the last four years, with a significant decline from 2017 to 2021 for Continent-wide standards, and a significant decline in total number of requirements from 2019 to 2021 for Regional Reliability Standards. Figure 1 indicates 445 continent-wide requirements; Figure 2 indicates 69 Regional Reliability standards forecast for 2027.

² Available from the Standards section of the NERC website: <http://www.nerc.com/pa/Stand/Pages/default.aspx>

³ Charts were developed using end of Q4 2020 data.

⁴ These projects include the following: Project 2015-09 (FAC-010-4, FAC-011-4, FAC-014-3), Project 2016-02 (CIP-003-7(i)), Project 2018-03 SER Retirements.

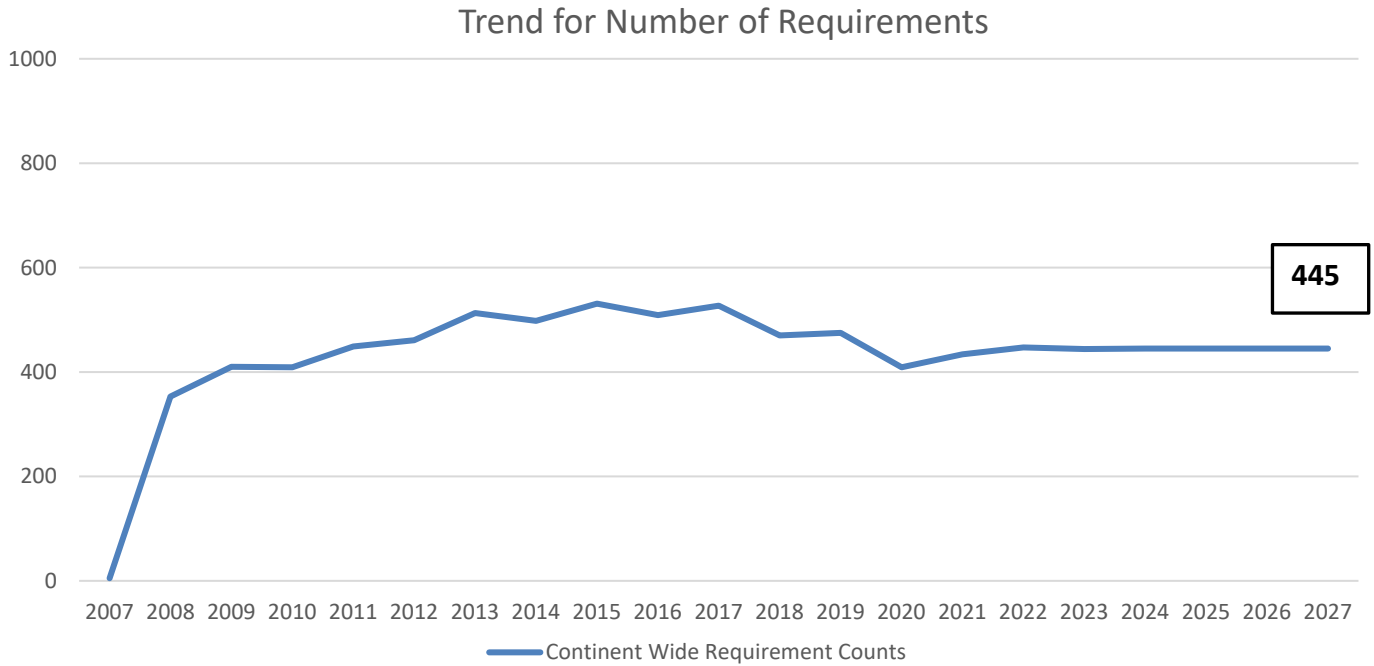
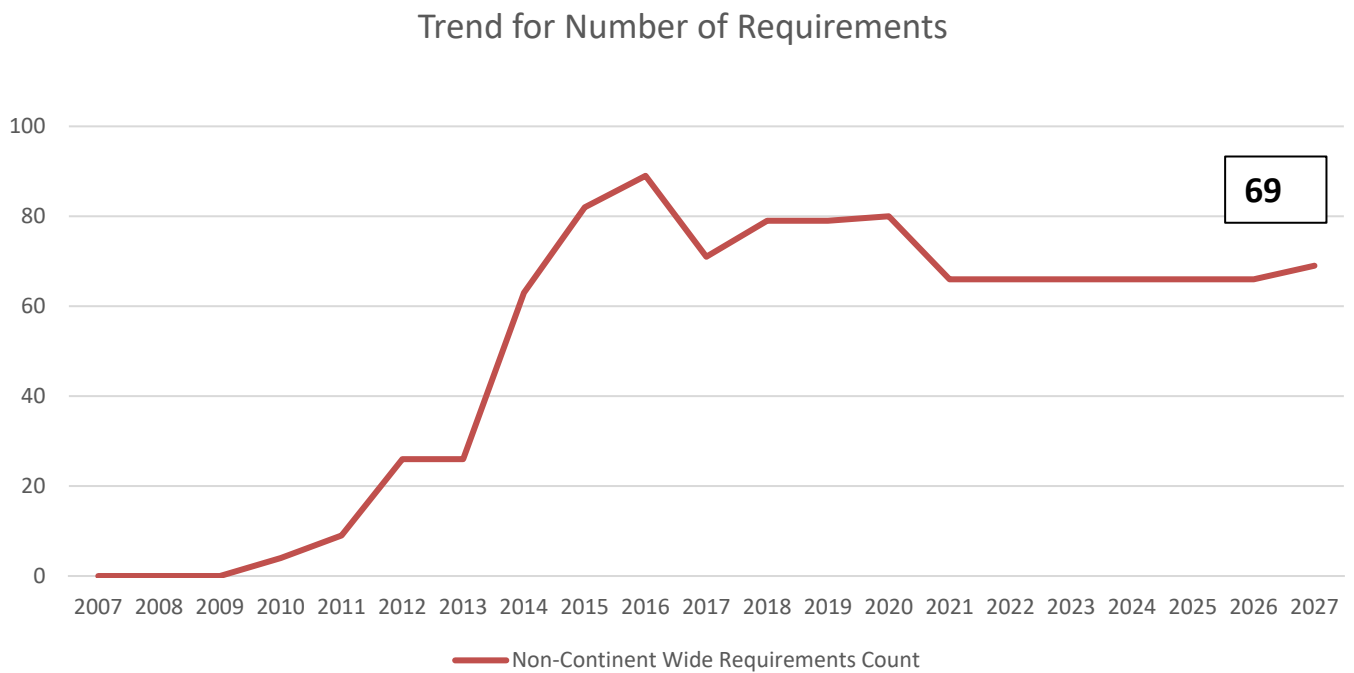


Figure 2: Trend for Number of Requirements for Regional Reliability Standards



Chapter 2: Regulatory Update

NERC FILINGS April 1, 2021 – June 30, 2021

FERC Docket No.	Filing Description	FERC Submittal Date
EL21-54-000	Motion to Intervene and Comment regarding Mabee Cold Weather Complaint NERC and Texas RE submitted a Motion to Intervene and Comment regarding a complaint by Michael Mabee related to Reliability Standards under Docket No. EL21-54-000.	4/5/2021
AD21-13-000	Comments of NERC on Climate Change, Extreme Weather, and Electric System Reliability NERC submitted comments in response to the Supplemental Notice of Technical Conference Inviting Comments issued on March 15, 2021 in the Climate Change, Extreme Weather, and Electric System Reliability technical conference proceeding.	4/15/2021
RM15-11-003	GMD Research Work Plan Final Report Informational Filing NERC submitted an informational filing regarding research done under the Geomagnetic Disturbance (GMD) Research Work Plan.	4/30/2021
RR21-4-000	NERC Petition for Approval of Amendments to WECC Regional Reliability Standards Development Procedures NERC submitted a petition for approval of amendments to WECC Regional Reliability Standards Development Procedures.	5/19/2021
RD20-2-000	CIP SDT Schedule June Update Informational Filing NERC submitted an Informational Compliance Filing as directed by FERC in its February 20, 2020 Order. This filing contains a status update on two standards development projects relating to CIP Reliability Standards.	6/15/2021
RD21-5-000	Petition for Approval of Proposed Cold Weather Reliability Standards and Request for Expedited Action NERC submitted a petition for approval of proposed Reliability Standards EOP-011-2, IRO-010-4, and TOP-003-5 and request for expedited action.	6/17/2021

RM21-19-000	Petition for Approval of SOL Standards NERC submitted to FERC a petition for approval of proposed Reliability Standards developed under Project 2015-09 Establish and Communicate System Operating Limits. This file is very large, a smaller file without the complete record of development is available here .	6/28/2021
RM17-11-000	CIP-003-8 Electronic Access Controls Study NERC submitted to FERC the CIP-003-8 Electronic Access Controls Study Report as directed by FERC Order No. 843.	6/30/2021

FERC ISSUANCES April 1, 2021 – June 30, 2021

ERC Docket No.	Issuance Description	FERC Issuance Date
RR21-1-000	Letter Order approving amended NERC Bylaws FERC issued an order approving amendments to NERC Bylaws.	4/5/2021
RD21-4-000	Letter Order approving Reliability Standard FAC-008-5 FERC issued a letter order approving proposed Reliability Standard FAC-008-5.	4/7/2021
RM19-20-000	Order approving Reliability Standard BAL-002-WECC-3 FERC issued an order approving Reliability Standard BAL-002-WECC-3 (Contingency Reserve).	4/15/2021
EL21-54-000	Order Denying Complaint of Michael Mabee FERC issued an order denying the complaint of Michael Mabee relating to the weather-related power outages in Texas during the second week of February 2021.	5/26/2021
RR21-2-000	Letter Order approving Revisions to SERC Reliability Corporation Regional Standards Development Procedure (RSDP)	6/15/2021

	FERC issued a letter order approving revisions to the SERC Reliability Corporation Regional Standards Development Procedure (RSDP).	
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Chapter 3: Standards Committee Report

Summary

This report highlights some of the key activities of the Standards Committee (SC) during the second quarter of 2021.

At its April 21 meeting, the SC:

1. Authorized initial posting of proposed Reliability Standard CIP-012-2 and the associated Implementation Plan for a 45-day formal comment period, with ballot pool formed in the first 30 days, and parallel initial ballots and non-binding polls on the Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs), conducted during the last 10 days of the comment period;
2. Appointed a supplemental standard drafting team (SDT) member to the Project 2019-06 Cold Weather SDT, as recommended by NERC staff;
3. Endorsed the recommendation for the Standards Committee Process Subcommittee in coordination with NERC staff to conduct a comprehensive review of existing standards development processes and propose revisions to engrain the efficiency principles into all aspects of the standards development process.

At its May 19 meeting, the SC:

1. Accepted the Standard Authorization Request (SAR) submitted by Glencoe Light and Power to revise Reliability Standard PRC-002-2, Requirements R1, Part 1.2 and R3; authorized posting of the SAR for a 30-day formal comment period; and authorized for solicitation of SAR Drafting Team (DT) members.
2. Accepted the revised Project 2020-05 Modifications to FAC-001 and FAC-002 Standard Authorization Request (SAR); authorized drafting revisions to the Reliability Standards identified in the SAR; and appointed the Project 2020-05 Modifications to FAC-001 and FAC-002 SAR Drafting Team (DT) as the Project 2020-05 Standard Drafting Team (SDT).
3. Appointed members, chair, and vice chair to the Standard Drafting Team (SDT) for Project 2021-03, as recommended by NERC staff.

At its June 16, meeting, the SC:

1. Accept the revised Project 2019-04 Modifications to PRC-005-6 Standard Authorization Request (SAR); Authorize drafting revisions to the Reliability Standard identified in the SAR; Appoint the Project 2019-04 Modifications to PRC-005-6 SAR Drafting Team (DT) as the Project 2019-04 Standard Drafting Team (SDT); and Authorize a 30-day solicitation for nominations period for the Project 2019-04 Modifications to PRC-005-6 SDT to add additional members to the SDT with specific industry expertise in Protection System station direct current (DC) supply technologies.

June 25 the SCEC had an action without a meeting to:

1. Authorize initial posting of proposed Reliability Standard CIP-003-X and the associated Implementation Plan for a 45-day formal comment period, with ballot pool formed in the first 30 days, and parallel initial ballots and non-binding polls on the Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs), conducted during the last 10 days of the comment period.

Two special elections were conducted to fill segment 4 and 5 openings. Segment 4 election was conducted from April 29 – May 10, 2021 for the remainder of the 2021-2022 term. Segment 5 election was conducted from June 3 – 10, 2021 for the remainder of the 2020-2021 term.

Compliance and Certification Committee (CCC) Board Report

Action

Information

Highlights

The CCC convened its second quarter meeting via WebEx on June 8-10, 2021.

- As included in the CCC Charter, the Committee is responsible for providing comments and recommendations to the NERC Board of Trustees (Board) and NERC management regarding stakeholder perceptions of the policies, programs, practices, and effectiveness of the Compliance Monitoring and Enforcement Program and the Organization Registration and Certification Programs, as well as elements of the Reliability Standards Development Process. The 2021 Stakeholder Perceptions Work Plan associated with the Committee's Stakeholder Perceptions Feedback Program reflects the following areas:
 - Compliance Oversight Plans
 - Risk-based Standards and Compliance Oversight
 - Registration & Certification Processes
 - Self-Logging Processes and Evidence Requirements
 - Align and Secure Evidence Locker Implementation Experience
 - Facility Ratings
 - Supply Chain Risk Management

This quarter's discussion was focused on Risk-based Standards and Compliance Oversight. The CCC members appreciate the participation and diligent engagement from the ERO Enterprise, as well as feedback received from numerous sectors prior to the meeting.

As the CCC moves forward with the Stakeholder Perceptions Work Plan, the CCC Executive Committee is engaging with the ERO Enterprise to review the results of each focused discussion and determine a potential pathway to address issues raised by industry, including recommendations for action, additional outreach, or need for further discussion. Upon completion of the annual Stakeholder Perceptions Work Plan, the CCC ERO Monitoring Subcommittee will prepare a report for broader distribution, "Stakeholder Perceptions Feedback Summary," to review the results of the perceptions gathered in the aforementioned areas along with any Committee observations and recommendations for further consideration.

- The Committee initiated the call for Nominations in mid-July with a notice that went out to industry for participation. We look forward to bringing forward strong candidates for Board consideration. In addition, the Committee took action to approve an updated *Procedure for the Selection of Members to NERC Compliance and Certification Committee*. This procedure is submitted for Board consideration and action at its

August 12 meeting. The updates represent clarifications to the procedure and will be posted on the NERC website upon Board approval.

- The Committee continues its work with NERC Internal Audit to update procedures, timelines and plans for ongoing audits related to the NERC Rules of Procedure (ROP) Appendices 4A, 4B, 4C, and 5A. As a reminder, the CCC serves in an observer capacity in partnership with NERC Internal Audit to fulfill the Committee's commitments in the CCC charter for monitoring NERC's adherence to the ROP and for Regional Entity adherence to the ROP. We have resources allocated in support of the planned audits over the next two years.
- The Committee received updates from all subcommittees, working groups, and task forces operating on behalf of the full committee in execution of the Committee mandate and ongoing activities.
- The Committee received updates on several initiatives from NERC management and conducted associated discussions. The topics included a status update on the following:
 - Align and SEL Update
 - ERO Enterprise Compliance Monitoring and Enforcement Manual v5.0
 - ERO Enterprise Guidance: Potential Noncompliance Related to Coronavirus Impacts
 - Compliance Guidance Status Updates
 - Implementation Guidance (Submissions and Results)
 - CMEP Practice Guides (Issued)

The next CCC meeting will be held in September 2021. Details are pending. We appreciate the continued collaboration with NERC management in support of the Committee's efforts.

Reliability and Security Technical Committee Report

Action

Information

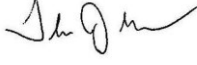
Reliability and Security Technical Committee's (RSTC) Highlights

The RSTC held a meeting June 8 and 9 via WebEx. Here are some of the highlights:

- The RSTC approved Rich Hydzik as Vice Chair, Rich will complete the remainder of the term of retired Vice Chair David Zwergel.
- The RSTC approved Reliability Guidelines for the Resources Subcommittee and the Real Time Operating Subcommittee, as well as a security guideline for the Security Working Group.
- The RSTC approved the amended work plan for the Security Integration and Technology Enablement Subcommittee (SITES).
- The RSTC approved the amended scope for the System Protection and Control Working Group (SPCWG).
- The RSTC approved the 2020 ProbA Scenario Case Study Report and a Data Collections Technical Reference Document for the Probabilistic Assessments Working Group (PAWG).
- The RSTC received updates from the newly formed Energy Reliability Assessments Task Force (ERATF) and the Standing Committee Coordination Group (SCCG).
- The RSTC received a preview of the 2021 State of Reliability Report from NERC management.
- The RSTC received an update on the recent FERC approved NERC Bylaw Amendments, most specifically an update on the modified Sector membership definitions and the upcoming NERC membership renewal.

Future Actions

- RSTC Meeting dates are set for 2021:
 - September and December meetings are virtual

To: NERC Board of Trustees (BOT)
From: Thomas J. Galloway, NATF President and CEO 
Date: July 20, 2021
Subject: NATF Periodic Report to the NERC BOT (August 2021)
Attachments: NATF External Newsletter (July 2021)

The NATF interfaces with the industry as well as regulatory agencies on key reliability, resiliency, security, and safety topics to promote collaboration, alignment, and continuous improvement, while reducing duplication of effort. Some examples are highlighted below and in the attached NATF external newsletter, which is also available on our public website: www.natf.net/news/newsletters.

NATF-NERC Leadership Meetings

NATF and NERC leadership meet periodically to discuss collaborative work and industry topics. The most-recent call, on June 28, included discussions on facility ratings, vegetation management practices, security, supply chain, cold-weather events, risk tracking, grid security emergencies, 6 Ghz band, and distributed energy resources.

Facility Ratings

The NATF is working with its members to socialize and review member implementation of facility ratings practices developed by a team of subject-matter experts from NATF member companies. A summary report on overall member implementation status as of April 2021 will be provided by the NATF to NERC and regional entity leadership in August. Future updates are planned approximately every six months. See more about NATF work in the attached newsletter.

NATF Security and Supply Chain Work

NATF staff and members are coordinating on multiple security topics and monitoring threats and responses. A few activities are noted below and described further in the attached newsletter.

Working with the Industry Organizations Team, the NATF continues to promote supply chain security through the use of the NATF supply chain security assessment model as well as industry alignment on supplier information to obtain for supplier supply chain security assessments. The NATF recently posted updates to the “Supply Chain Security Assessment Model,” “NATF Supply Chain Security Criteria,” and “Energy Sector Supply Chain Risk Questionnaire” for industry use.

NATF staff continues to evaluate government actions (e.g., executive orders, requests for information, and the DOE-CISA 100-day initiative), provide updates and clarifying information to our members, and evaluate whether the NATF supply chain model would require modifications to be responsive to any such action. The NATF submitted a response to the April 20, 2021, Department of Energy request for information on “Ensuring the Continued Security of the United States Critical Electric Infrastructure.” The NATF and members are reviewing potential implementation guidance for tools used in continuous ICS/OT system cybersecurity monitoring, detection, and response, as identified in the DOE-CISA 100-day initiative.

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North American Transmission Forum External Newsletter

July 2021

NATF Posts Updated Supply Chain Documents for Industry

The “Supply Chain Security Assessment Model,” “NATF Supply Chain Security Criteria,” and “Energy Sector Supply Chain Risk Questionnaire” version 2.0 documents have been posted for industry use on the [Supply Chain Cyber Security Industry Coordination](#) page of the NATF public website. These postings reflect changes suggested by industry during the annual revision cycle.

Using the Assessment Model, Criteria, and Questionnaire

The five-step model provides a solid foundation for identifying, assessing, and mitigating supply chain risks; provides for inclusion of suppliers and solution providers depending upon each entity’s needs; and provides for flexibility of each entity’s implementation.

The criteria and questionnaire support the first three steps in the assessment model. The graphic to the right depicting the model provides a streamlined view of the process; however, it is important to review the detail for each of the steps so the intent of the model is not misconstrued and full value of the model can be realized. A full, yet concise, description is provided in the “Supply Chain Security Assessment Model,” and the basic actions for each step are provided here.



Supply Chain Security Assessment Model

Collect (and Validate) Information

Use existing means to obtain information regarding a supplier’s adherence to the NATF criteria or questionnaire:

- **Validated responses:** Obtain a certification (e.g., IEC 62443 or ISO 27001) or assessment (e.g., SOC 2 Type II) that maps to the criteria. *This would provide validated information.*
- **Supplier attestation (not validated):** Obtain a supplier-completed questionnaire or responses to the criteria. *This could be validated by a review of evidence or supporting certifications/assessments.*
- **Shared assessment:** Obtain an assessment conducted by another entity. *This may or may not be validated information.*

Collect additional information from public sources as necessary.

Evaluate the Information and Address Risks

Evaluate three levels, considering the product or service to be purchased: adherence, assurance, and ability to mitigate risks:

- **Supplier’s security posture:** Determine if the supplier’s level of adherence to the NATF criteria or questionnaire is appropriate for the product or service being purchased.

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- *Validation of information:* What level of assurance was provided for the accuracy of the supplier information and is the level of confidence provided appropriate for the product or service?
- *Mitigate identified risks:* Did the above two questions identify risks, and can those risks be mitigated or accepted?

Conduct Risk Assessment (of Supplier's Supply Chain Security)

- Based on the information obtained in the prior two steps, including any risk mitigations, conduct a supply chain security assessment for the supplier.

Note that the criteria and questionnaire are not “frameworks” in the same manner as security frameworks such as an IEC 62443, ISO 27001, or a SOC 2 Type II, among others. Those frameworks are audited by qualified third-party assessors, and suppliers receive either a certification or assessment report indicating their performance. Entities can use these security frameworks to validate information provided by the supplier.

When using a security framework audit or certification to validate supplier responses, an entity should verify that the certification or assessment report addresses all of questions or criteria needed to analyze risk for the purchase, which can be done by reviewing the report’s statement of applicability. Mapping to selected security frameworks is provided in the NATF criteria.

Next Steps

The NATF continues to work externally on supply chain risk management with the Industry Organizations Team consisting of electric utilities, energy industry trade and forum representatives, suppliers, third-party assessors, and solution providers. The team has established goals to guide 2021 activities, including the following:

- Adoption of the NATF “Supplier Cyber Security Assessment Model”
- Monitoring of threat and governmental/regulatory landscapes

Central Repository/Library

As the industry adopts the assessment model, the need for additional assistance in obtaining validated supplier information has been identified. The NATF and the Industry Organizations Team are taking actions to help, exploring the development of a central repository for supplier information. The objective is to provide an affordable, easy-to-access library of information for suppliers to the electric industry. Entities will continue to have the ability to conduct a risk assessment for a potential supplier, identify risks and mitigations, and make a risk-informed purchase decision.

Regulatory Endorsement

The NATF, with support from the Industry Organizations Team, is working towards obtaining endorsement of the model, criteria, and questionnaire from the ERO Enterprise. The supply chain security assessment model is focused on security; however, obtaining assurance that the model provides a solid framework for compliance will provide additional confidence for adoption. These documents are examples of work that originated based on a request from the NERC Board of Trustees.¹

¹ In its August 2017 resolution adopting the supply chain standards, the NERC board of trustees requested NATF and other industry organizations to develop and share “best and leading practices in cyber security supply chain risk management, including procurement, specification, vendor requirements, and managing existing equipment activities.” (See [NERC Board of Trustees’ Resolution](#))

Learn more about the Industry Organizations Team and projects supporting the 2021 goals at <https://www.natf.net/industry-initiatives/supply-chain-industry-coordination>

Response to U.S. Department of Energy (DOE) Request for Information (RFI)

The NATF submitted a response to the April 20, 2021, DOE RFI on “Ensuring the Continued Security of the United States Critical Electric Infrastructure.” The NATF’s response highlights that it is uniquely positioned and prepared to assist in protecting the security, integrity, and reliability of the bulk power system through the elimination of compromises introduced through supply chains, and references the long-standing, collaborative supply chain risk management efforts led by the NATF.

At a high level, the NATF recommended “...continued collaboration and coordination among governmental agencies and between the government and the private sector, measured use of clear prohibition orders if needed to address risks requiring immediate action, increased sharing of risk information identified by intelligence agencies, support for private sector collaboration (such as the NATF activities), and continued use of the existing regulatory framework.”

Responses to the RFI are posted on the DOE’s “Securing Critical Electric Infrastructure” web page: <https://www.energy.gov/oe/securing-critical-electric-infrastructure>.

Facility Ratings Practices Implementation

The NATF and members representing approximately 83% of the total transmission mileage at 100 kV and above in the United States and Canada continue work and reporting on enhancements to members’ facility ratings practices and processes, with guidance from the “NATF Facility Ratings Practices Document” developed by a team of subject-matter experts from NATF member companies.

The NATF periodically surveys its members to learn the extent to which NATF members have implemented and/or enhanced their facility ratings practices and processes. A summary report on overall member implementation status as of April 2021 will be provided by the NATF to NERC and regional entity leadership in August or September. Future updates are planned approximately every six months.

In addition, NATF staff participates in the joint Compliance and Certification Committee / Reliability and Security Technical Committee Facility Ratings Task Force (FRTF) to help ensure the NATF and FRTF efforts are complementary and not duplicative.

The “NATF Facility Ratings Practices Document”—published for members in mid-2020—provides guidance for establishing sustainable programs, processes, and internal controls to help ensure that facility ratings are accurate and that ratings for equipment and facilities are documented and communicated.

The NATF facility ratings practices are consistent with and align with practices and controls suggested by the ERO Enterprise in its November 2019 facility ratings problem statement and in reports and webinars presented by NERC and the regional entities.

For more information about the NATF, please visit www.natf.net.



North American Generator Forum

**TO: NERC Board of Trustees
James B. Robb, President and CEO**

**FROM: Wayne D. Sipperly Jr, Executive Director, North American
Generator Forum (NAGF)**

DATE: July 27, 2021

SUBJECT: NAGF 2021 Summer Report

The NAGF continues to provide its members with the opportunity to share their plans for business operations in the “new normal” via webinars and the NAGF Groupsite discussion board.

The NAGF is actively engaged in the following NERC Projects to help ensure the generator sector perspective is heard and understood:

- NERC Project 2017-01: Modifications to BAL-003
- NERC Project 2019-04: Modifications to PRC-005-6
- NERC Project 2021-01: Modifications to MOD-025 and PRC-019
- NERC Project 2021-02: Modifications to VAR-002
- NERC Project 2021-04: Modifications to PRC-002

The NAGF has quarterly webinars to enhance communication and engage NAGF membership regarding recent NAGF activities, upcoming initiatives, and to acquire feedback regarding activities of interest. The NAGF 2Q2021 Member Webinar was held on June 17, 2021 with over 90 participants.

As part of its outreach and education activities, the NAGF presented or is scheduled to present at the following virtual events:

- ReliabilityFirst (RF) Operational Resilience Webinar held on June 8, 2021
- NAES NERC Guiding Compliance - Improving Reliability Conference scheduled for August 3-5, 2021
- RF/SERC Cold Weather Preparedness Webinar scheduled for August 24, 2021

The NAGF is expanding its staff to include a new Program and Marketing Analyst position due to increased work load and reduced member volunteer bandwidth for

supporting NAGF activities. The entry-level position is initially a part-time position (up to 20 hrs/week) with the potential to grow to a full-time position. Job duties include administrative, Board/Officer and AC Support, Marketing, Website Support, and Membership Services.