NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Agenda
Board of Trustees

August 18, 2022 | 8:30 a.m.-12:00 p.m. Pacific
In-Person Meeting

In-Person
Hyatt Regency Vancouver
655 Burrard St.
Vancouver, BC V6C 2R7, Canada

Conference Room: Regency C/D-3rd floor

Virtual Attendees
Webcast Link - August 18, 2022

Call to Order

NERC Antitrust Compliance Guidelines*

Introduction and Chair's Remarks

Consent Agenda – Approve

1. **Minutes***
   a. July 7, 2022 Meeting
   b. May 12, 2022 Meeting
2. **Committee Membership and Charter Amendments***
   a. Reliability and Security Technical Committee Membership

Regular Agenda

3. **Remarks and Reports**
   a. Remarks by Doug Allen, Chair, BC Hydro Board of Directors
   b. Remarks by Francis Bradley, President and CEO, Electricity Canada
   c. Remarks by Patricia Hoffman, Acting Assistant Secretary, Office of Electricity, DOE
   d. Remarks by David Morton, Chair, CAMPUT
   e. President's Report
   f. Report on the August 12 and August 18, 2022 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 2023 Business Plans and Budgets and Associated Assessments* – **Approve**
   iii. Line of Credit Renewal* – **Approve**
d. Enterprise-wide Risk
e. Technology and Security
f. Nominating
g. Report by Roy Thilly on RSTC Quarterly Activities
h. Report by Sue Kelly on Standards Quarterly Activities

5. Standards Quarterly Report and Actions*

a. Cold Weather Standard Development Update – **Information**
b. Standards Process Improvement Opportunities – **Information**
c. Critical Infrastructure Protection Board Resolution Update – **Information**

BREAK – 15 MINS

6. Other Matters and Reports

a. Policy Input and Member Representatives Committee Meeting – **Review**
b. Semi-annual Review of the Achievements of the ERO Enterprise Work Plan Priorities* – **Update**
c. Risk Registry Update* – **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.

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC 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.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Draft Minutes
Board of Trustees

July 7, 2022 10:00 a.m.–10:45 a.m. Eastern

Virtual Meeting

Call to Order

Mr. Kenneth W. DeFontes, Jr., Chair, called to order the duly noticed open meeting of the Board of Trustees (the Board) of the North American Electric Reliability Corporation (NERC or the Corporation) on July 7, 2022, at 10:00 a.m. Eastern, and a quorum was declared present. The agenda is attached as **Exhibit A**.

Present at the meeting were:

Board Members
Kenneth W. DeFontes, Jr., Chair
George S. Hawkins, Vice Chair
Jane Allen
Robert G. Clarke
Larry Irving
Suzanne Keenan
Susan Kelly
Robin E. Manning
Jim Piro
James B. Robb, NERC President and Chief Executive Officer
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 and Chief Administrative Officer
Mark G. Lauby, Senior Vice President and Chief Engineer
Sônia Mendonça, Senior Vice President, General Counsel, and Corporate Secretary
Kimberly Mielcarek, Vice President, Communications
John Moura, Director, Reliability Assessment and Performance Analysis
Lauren Perotti, Senior Counsel
Bryan Preston, Vice President, People and Culture
Janet Sena, Senior Vice President, External Affairs
Andy Sharp, Vice President and Chief Financial Officer

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 and noted the purpose of the meeting is to accept the annual State of Reliability Report. Mr. Robb remarked on the purpose of the report and the importance of NERC's reliability assessments in driving discussion with policy makers and regulators on issues affecting grid reliability.

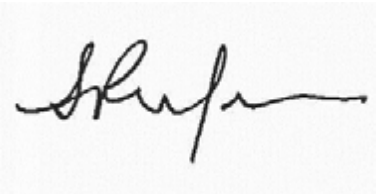
2022 State of Reliability Report

Mr. Moura presented the 2022 State of Reliability Report, noting that the report is prepared annually to provide objective, credible, and concise information to policy makers, industry leaders, and the Board on issues affecting the reliability and resilience of the North American bulk power system. He highlighted key findings from the report, including reliability challenges from severe weather and extreme cold weather, electric and natural gas interdependencies, unaddressed issues involving inverter-based resources, and the cyber threat landscape. The Board discussed the key recommendations and recommended actions. Mr. Tim Gallagher, President and CEO of ReliabilityFirst, discussed state outreach efforts. After discussion, and upon motion duly made and seconded, the Board accepted the 2022 State of Reliability Report.

Other Matters and Adjournment

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

Submitted by,



Sônia Mendonça
Corporate Secretary

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Draft Minutes
Board of Trustees

May 12, 2022 | 8:30 a.m.–12:00 p.m. Eastern

Virtual Meeting

Call to Order

Mr. Kenneth W. DeFontes, Jr., Chair, called to order the duly noticed open meeting of the Board of Trustees (the Board) of the North American Electric Reliability Corporation (NERC or the Corporation) on May 12, 2022, at 8:30 a.m. Eastern, and a quorum was declared present. The agenda is attached as **Exhibit A**.

Present at the meeting were:

Board Members
Kenneth W. DeFontes, Jr., Chair
George S. Hawkins, Vice Chair
Jane Allen
Robert G. Clarke
Larry Irving
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
Stan Hoptroff, Vice President, Business Technology
Soo Jin Kim, Director, Power Risk Issues and Strategic Management
Mark G. Lauby, Senior Vice President and Chief Engineer
James McGrane, Senior Counsel
Sônia Mendonça, Senior Vice President, General Counsel, and Corporate Secretary
Kimberly Mielcarek, Vice President, Communications
John Moura, Director, Reliability Assessment and Perfromance Analysis
Lauren Perotti, Senior Counsel
Bryan Preston, Vice President, People and Culture
Lonnie Ratliff, Senior Manager, Cyber and Physical Security Assurance
Janet Sena, Senior Vice President, External Affairs
Andy Sharp, Vice President and Chief Financial Officer
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. David Turk, Deputy Secretary, Department of Energy ("DOE"); Chairman Richard Glick, Federal Energy Regulatory Commission ("FERC"); Commissioner Willie Phillips, FERC; Ms. Patricia Hoffman, Acting Assistant Secretary, Office of Electricity, DOE; and Mr. David Morton, Chair, CAMPUT. Mr. DeFontes remarked on the engaged discussion at the Member Representatives Committee ("MRC") meeting the day prior and expressed his gratitude to staff for successfully transitioning the meetings from the planned in-person attendance to virtual format in light of continued impacts from the COVID-19 pandemic.

Consent Agenda

Mr. DeFontes introduced the Consent Agenda by thanking Mr. Greg Ford and Mr. Rich Hydzik for their willingness to serve as the leadership of the Reliability and Security Technical Committee for another term. Upon motion duly made and seconded, the Board approved the consent agenda as follows:

Minutes

The draft minutes for the February 10, 2022 meeting were approved as presented to the Board at this meeting.

Committee Membership and Charter Amendments

Reliability and Security Technical Committee Membership

WHEREAS, the Reliability and Security Technical Committee ("RSTC") voted to reelect the current Chair and Vice Chair to an additional one-year term, as recommended by the nominating subcommittee, to provide continuity and to facilitate a smooth transition as the RSTC finalizes the development and implementation of a two-year strategic work plan to guide the RSTC's 2023-2025 deliverables of the RSTC;

WHEREAS, the RSTC Charter provides that no individual may serve more than one term as vice chair and one term as chair unless an exception is approved by the Board;

WHEREAS, the Board supports the reelection of the current RSTC leadership and appreciates the willingness of both Messrs. Ford and Hydzik to continue to serve;

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby appoints Greg Ford as Chair of the RSTC, and Rich Hydzik as Vice Chair, each for a term ending June 30, 2023.

BE IT FURTHER RESOLVED, that the Board hereby appoints the following individuals to the RSTC as follows:

- Sector 3: Gregory McAuley, Seminole Electric – for the 2022-2024 term; and
- Sector 10: CJ Brown, Southwest Power Pool – for the 2022-2023 term.

Regular Agenda

Remarks by David Turk, Deputy Secretary, DOE

Mr. Robb introduced Mr. Turk of the DOE. Mr. Turk remarked on the need for government, NERC, and industry to work together to address current and future challenges to the reliability and security of the bulk power system. He

remarked on DOE initiatives to address challenges in the areas of cybersecurity, supply chain, transmission, and renewable energy, and he highlighted areas for increased collaboration to address those challenges.

Remarks by Richard Glick, Chairman, FERC
Mr. Robb introduced Chairman Glick of FERC. Chairman Glick remarked on the strength of relationship between NERC and FERC and the importance of their joint roles in ensuring the reliability of the bulk power system. He remarked on the challenges posed by the changing resource mix, extreme weather, and cybersecurity threats, and he noted the need to work together to address those challenges. Chairman Glick stated that supply chain cybersecurity risks in particular may require more attention to ensure they are sufficiently addressed.

Remarks by Willie Phillips, Commissioner, FERC
Mr. Robb introduced Commissioner Phillips of FERC, noting his past service as an attorney with NERC. Commissioner Phillips remarked on issues of mutual concern and expressed FERC's commitment to work with NERC and industry to address challenges to reliability, particularly those posed by cybersecurity, extreme weather, the changing resource mix, and supply chain issues.

Remarks by Patricia Hoffman, Acting Assistant Secretary, Office of Electricity, DOE
Mr. DeFontes introduced Ms. Hoffman of DOE. Ms. Hoffman remarked on DOE priorities, including transmission planning, integrating clean energy resources, and improving the resiliency of the electric grid. She noted the need to work together to develop alternative plans to address some of the supply chain concerns facing the industry.

Remarks by David Morton, CAMPUT Representative to NERC
Mr. DeFontes introduced Mr. Morton of CAMPUT. Mr. Morton expressed his appreciation for NERC's participation at the recent CAMPUT meeting. He also remarked on the strengthening ties between NERC and the Canadian regulators and the improved working relationship between the E-ISAC and Canadian regulators.

President's Report
Mr. Robb provided the president's report. He remarked on the increasingly turbulent environment due to geopolitical tensions in Eastern Europe, ongoing supply chain concerns, and cybersecurity challenges, as well as the need for government, industry, and NERC to work together to address these issues. Mr. Robb remarked that NERC's business plan and budget process is now underway, and that NERC management prepared a three-year resource plan to phase in needed investments in resources and technology to meet the reliability challenges of the twenty-first century power grid. He encouraged stakeholders to provide their feedback on the plan.

Mr. Robb then introduced Mr. Jason Blake, CEO of SERC Reliability Corporation and co-chair of the ERO Enterprise Executive Committee, to provide additional comments. Mr. Blake remarked on the Regional Entity audits underway and noted the importance of these independent reviews in identifying areas of strength as well as opportunites where the Regional Entities can improve in driving the overall reliability mission of the ERO Enterprise. He also remarked on efforts to drive collaboration across the ERO Enterprise, particularly in the business plan and budget process. Mr. DeFontes remarked that enhancing the collaboration between NERC and the Regional Entities will strengthen the ERO Enterprise.

Report on the April 14, May 9, and May 12, 2022 Closed Meetings
Mr. DeFontes reported that on April 14, 2022, May 9, 2022, and May 11, 2022 (as is its custom), the Board met in closed session with NERC management to review NERC management activities. On April 14, the Board discussed, among other things, the business plan and budget process and the need to step back and evaluate governance processes more generally. On May 9, the Board met to discuss objectives for the meeting with ERO Enterprise leadership staff, staff's preliminary recommendations for standards processes improvements, and proposed amendments to the Québec Memorandum of Understanding. The Board also met in executive session with the General Counsel and CEO to discuss confidential issues. On May 11, the Board discussed Reliability Standards

proposed for adoption at this meeting, the Board's resolutions for this meeting, feedback for policy input, and planning for the August meetings.

Board Committee Reports

Corporate Governance and Human Resources
Ms. Keenan, Committee Chair, reported on recent Committee meetings. At the April 14, 2022 closed meeting, the Committee reviewed the proposed workforce investments necessary to advance NERC's priorities of energy, security, agility, and sustainability. She reported that the Committee, with all Trustees present, performed a deep dive analysis of the relevant factors and data and were satisfied that the proposed investments are necessary. Ms. Keenan also remarked that there are some uncertainties regarding wage data reflected in the draft budget. At the May 9, 2022 closed meeting, the Committee reviewed the corporate governance aspects of the IRS Form 990 and the Committee's self-assessment results.

At the Committee's open meeting on May 11, 2022, the Committee reviewed the results of the NERC Board Committees self-assessment and received an update on human resources and staffing. The Committee also approved and recommended for Board approval revisions to the Nominating Committee mandate.

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 ("CGHRC"), hereby approves the Nominating Committee Mandate, substantially in the form presented to the Board at this meeting, to replace the Nominating Committee Mandate approved by the Board on August 10, 2017.

Compliance
Mr. Manning, Committee Chair, reported on the May 10, 2022 closed meeting of the Committee, where the Committee received updates on Compliance Monitoring and Enforcement Program (CMEP) trends, activities, and 2022 program priorities and reviewed the results of the Committee self-assessment.

Finance and Audit
Mr. Piro, Committee Chair, reported on recent meetings of the Committee. At the April 14, 2022 closed meeting, the Committee reviewed in depth the 2023 Business Plan and Budget assumptions and recommendations. At the May 10, 2022 closed meeting, the Committee met in executive session with NERC's new independent auditor and reviewed the 2021 Financial Statement audit results. The Committee also reviewed the financial aspects of the IRS Form 990, received an update on the 2023 Business Plan and Budget process, reviewed Committee actions in support of its mandate, discussed the First Quarter Statement of Activities, reviewed the results of the Committee self-assessment, and received an update on internal audit matters.

Mr. Piro reported that, at its May 11, 2022 open meeting, the Committee took action on several items. First, the Committee reviewed and recommended for Board acceptance the 2021 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 ("FAC"), hereby accepts the 2021 Audited Financial Statements, as presented to the Board at this meeting.

Second, the Committee reviewed and recommended for Board acceptance the First Quarter Statement of Activities. Upon motion duly made and seconded, the Board approved the following resolutions:

RESOLVED, that the Board, upon recommendation of the FAC, hereby accepts the First Quarter 2022 NERC, Combined ERO Enterprise, and Regional Entity Unaudited Statement of Activities, as presented to the Board at this meeting.

Mr. Piro reported that the Committee also received a highly detailed presentation on the 2023 Business Plan and Budget process, and that NERC will post a draft budget for stakeholder comment later in May.

Enterprise-wide Risk
Ms. Sidford, Committee Chair, reported on the Committee's closed meeting on May 3, 2022. At its meeting, the Committee received updates on the activities of the Compliance and Certification Committee, including an overview of the 2022 Perception Report. The Committee also received an update on Regional Entity activities, reviewed the results of the Committee self-assessment, received an update on the 2022 internal audit plan, and received updates on NERC's revamped corporate risk management framework and efforts to address environmental and social governance issues.

Technology and Security
Ms. Allen, Committee Chair, reported on the Committee's closed meeting on May 9, 2022. At the meeting, the Committee received updates on E-ISAC operations, the results of the recent GridEx exercise, and the ERO Enterprise Align project. The Committee also reviewed the results of the Committee self-assessment.

Nominating
Mr. Clarke, Committee Chair, reported on the Committee's closed meeting on May 10, 2022. He reported that Ms. Keenan and Mr. Piro will be recommended for re-election, but that Mr. Thilly is term limited and a search will be conducted for his replacement. At its meeting, the Committee discussed the needs and expectations for its Trustee search with the recruiting firm and reviewed the results of the Committee self-assessment.

Report by Roy Thilly on RSTC Quarterly Activities
Mr. Thilly, Liaison to the RSTC, reported on the recent activities of the RSTC. Mr. Thilly remarked that the RSTC has done an excellent job transitioning to the new committee framework under the leadership of Chair Ford, and that the Committee continues to progress toward a more strategic oversight role. He reported that the RSTC elected Mr. Ford to serve another term as Chair and elected Mr. Hydzik to the role of Vice Chair. Mr. Thilly reported that the Committee continues to discuss key reliability issues, including those posed by inverter-based resources, and will be endorsing several Standard Authorization Requests to initiate standards projects to address these issues.

Report by Susan Kelly on Standards Quarterly Activities
Ms. Kelly, Liaison to the Standards Committee, reported on actions taken at recent meetings, including action to authorize postings, accept Standard Authorization Requests, and appoint drafting teams. She highlighted progress on projects addressing cybersecurity considerations.

Standards Quarterly Report and Actions

Project 2020-05 Modifications to FAC-001 and FAC-002
Mr. Gugel presented the proposed Reliability Standards, highlighting that they would improve upon the currently effective standards by providing needed clarity as to an entity's obligations. Upon motion duly made and seconded, the Board approved the following resolutions:

Proposed Reliability Standard FAC-001-4

RESOLVED, that the Board hereby adopts the proposed Reliability Standard FAC-001-4, 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-001-3, as presented to the Board at this meeting.

Proposed Reliability Standard FAC-002-4

RESOLVED, that the Board hereby adopts the proposed Reliability Standard FAC-002-4, 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-002-3, as presented to the Board at this meeting.

Implementation Plan for Project 2020-05

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

Authorization

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

Cold Weather Standard Development Update

Mr. Gugel provided an update on standard development activities to address the recommendations of the FERC/ERO Enterprise joint inquiry into February 2021 cold weather outages in Texas and the south central United States. He reported that draft standards to address the first phase recommendations are scheduled to be posted for a shortened comment and ballot period later in May.

Standard Process Improvement Opportunities

Mr. Gugel provided an update regarding NERC staff's efforts to examine the body of rules regarding Reliability Standards development and recommend changes to improve NERC's ability to address urgent reliability needs with appropriate agility, consistent with the resolution adopted by the Board at its February 10, 2022 meeting. He reviewed staff's preliminary recommendations, highlighting that any changes resulting from these recommendations would improve efficiency and agility while maintaining an open and inclusive standard development process.

Mr. DeFontes noted that the Board supports efforts to improve the agility of NERC's processes, and a stakeholder panel would be convened to provide feedback on the final recommendations. Ms. Kelly remarked on the need for this effort to ensure that NERC is able to act appropriately on urgent issues.

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 introduced Mr. Ratliff, who provided an overview of NERC's efforts to assess the effectiveness of the supply chain risk management Reliability Standards. Mr. Tony Eddleman, Chair of the Supply Chain Working Group, provided an overview of a recent industry survey regarding entities' experiences implementing the standards and discussed efforts by other industry groups to address supply chain issues.

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 11, 2022 Member Representatives Committee meeting. Mr. DeFontes expressed his appreciation for the policy input and feedback.

Amended and Restated Agreement between the Régie de l'énergie, the North American Electric Reliability Corporation, and the Northeast Power Coordinating Council, Inc.
Mr. McGrane reviewed the proposed amendments to the 2014 agreement between the Régie de l'énergie, the North American Electric Reliability Corporation, and the Northeast Power Coordinating Council, Inc., which governs Compliance Monitoring and Enforcement Program activities in Québec. He noted that the revisions do not substantially change the current approach to CMEP activities in Québec, but do provide increased flexibility for the parties. Upon motion duly made and seconded, the Board approved the following resolutions:

> **WHEREAS**, the Régie de l'énergie is the entity charged under Québec law with authority over reliability matters in Québec, and the Régie de l'énergie, NERC, and NPCC have memorialized agreements with respect to Reliability Standards and Compliance Monitoring and Enforcement Program matters in Québec in 2009 and in 2014;
>
> **WHEREAS,** the 2014 Agreement is the main governing document setting forth NERC's responsibilities for CMEP activities in Québec, including the oversight of NPCC's Compliance Monitoring and Enforcement Program activities in Québec;
>
> **WHEREAS**, the Régie de l'énergie, NERC, and NPCC seek to revise the 2014 Agreement to reflect current practices regarding Compliance Monitoring and Enforcement Program activities in North America and to provide increased flexibility for the parties in certain respects;
>
> **NOW, THEREFORE, BE IT RESOLVED**, that the Board hereby approves the Amended and Restated Agreement on the Implementation of the Québec Reliability Standards Compliance Monitoring and Enforcement Program (the 3rd Agreement) between the Régie de l'énergie, NERC, and NPCC on substantially the terms and conditions presented to the Board, together with such changes as are approved by NERC's Chief Executive Officer.
>
> **BE IT FURTHER RESOLVED**, that each of NERC's Chief Executive Officer and General Counsel, are hereby authorized to execute and deliver, on behalf of NERC, the 3rd Agreement.

2022 Summer Reliability Assessment Preview
Mr. Moura introduced the 2022 Summer Reliability Assessment, noting that NERC will be presenting this assessment jointly with FERC staff for the first time at the FERC May 2022 open meeting. Mr. Olson previewed the findings, highlighting increased risk in certain areas and other reliability issues. He reported that the assessment is in the process of being finalized and will be published in the coming weeks.

2022 State of Reliability Report Preview

Mr. Moura previewed the 2022 State of Reliability Report, noting that the purpose of the report is to provide objective, credible, and concise information to decision makers on issues affecting the reliability and resilience of the bulk power system. He provided an overview of the preliminary key findings.

2022 ERO Enterprise Reliability Indicators

Chair DeFontes referred the attendees to the advance agenda materials for the update on the 2022 ERO Enterprise Reliability Indicators.

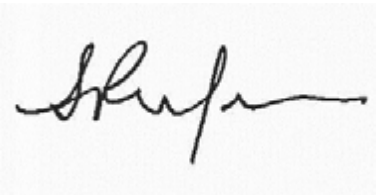
Committee Reports

Chair DeFontes referred the attendees to the advance agenda package for the Committee reports. He congratulated Mr. Allen D. Schriver, North American Generator Forum Chief Operating Officer, on his upcoming retirement and thanked him for his work with the Forum and for the input and guidance he has provided over the years to NERC and stakeholders.

Other Matters and Adjournment

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

Submitted by,



Sônia Mendonça
Corporate Secretary

Reliability and Security Technical Committee Membership

Action

Approve

Reliability and Security Technical Committee's (RSTC) Highlights

The RSTC held a special election for Sector 6 - Merchant Electricity Generator due to a member resignation. The RSTC recommends that the Board of Trustees approve the appointment of the following representatives for the term listed.

- Mark Spencer, LS Power Development – Term ending January 31, 2023

In addition, The RSTC Nominating Subcommittee (NS) met on Thursday, July 14, 2022, to review At-Large nominations due to a member resignation and select a recommended candidate from the nominations that were submitted during the Nomination period of June 23-July 8, 2022. Based on their deliberations, the NS is recommending Chad Thompson to the NERC Board of Trustees to be appointed as an At-Large member of the RSTC for a term ending on January 31, 2024.

Cold Weather Standard Development Update

Action
None

Background
Since 2011, the ERO Enterprise has heightened its scrutiny over events during extreme winter weather conditions. Most recently, FERC and the ERO Enterprise initiated a joint inquiry to review the circumstances surrounding the February 2021 event that affected Texas and parts of the southern central United States. On September 23, 2021, FERC and NERC staff presented preliminary findings and recommendations during the FERC Open Meeting. The Board of Trustees (Board), at its November 4, 2021 meeting, adopted a resolution approving the 2022-2024 Reliability Standards Development Plan, substantially in the form presented to the Board at the meeting, subject to the addition of the Extreme Cold Weather Grid Operations, Preparedness, and Coordination standards development project as a high priority item. They further directed completion of the development of new or revised Reliability Standards to address the recommendations of the joint inquiry team for cold weather operations, preparedness, and coordination in accordance with the timelines recommended by the joint inquiry team, as follows:

- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2022/2023: development completed by September 30, 2022, for the Board's consideration in October 2022;
- New and revised Reliability Standards to be submitted for regulatory approval before Winter 2023/2024: development completed by September 30, 2023, for the Board's consideration in October 2023.

On November 16, 2021, FERC and the ERO Enterprise published their final report. NERC staff submitted a Standard Authorization Request (SAR) to initiate the standards recommendations in the report. The Standards Committee (SC) approved the SAR for posting at its November 17, 2021 meeting. Based on comments received during the posting, the SAR drafting team made modifications and presented a final SAR to the SC, who accepted it at its February 25, 2022 meeting and authorized drafting of Reliability Standards based on the SAR. Draft Reliability Standards EOP-011-3 and EOP-012-1 were posted for comment and ballot May 19 through June 21. While EOP-011-3 passed its initial ballot, EOP-012-1 failed to pass. The Standard Drafting Team met to consider comments and revise EOP-012-1, which is currently out for comment and ballot.

Standards Process Improvement Opportunities

Action
Information

Background
The bulk power system (BPS) is now undergoing major transformation, presenting new and emerging challenges to reliability. Additionally, the cyber landscape continues to change, presenting new opportunities for efficient administration of the grid, but also new and evolving challenges and threats that grow more complex each year. Since 2007, mandatory Reliability Standards have played an important role in advancing the reliability and security of the North American BPS, and mandatory Reliability Standards will continue to play a vital role in addressing the new and emerging challenges of the transforming grid. Given the pace of change, however, NERC must evaluate its standard development processes to ensure that they can keep pace with the speed at which these risks are emerging.

With the importance of addressing the challenges of the transforming grid in mind, the NERC Board of Trustees directed NERC Staff at its February 10, 2022 meeting as follows:

> **BE IT FURTHER RESOLVED,** that the Board hereby directs NERC staff to examine the body of rules regarding Reliability Standards development and, considering the feedback of stakeholders, recommend such changes that would improve NERC's ability to address urgent reliability needs with appropriate agility, while also maintaining reasonable notice and opportunity for public comment, due process, openness, and balance of interests.
>
> **BE IT FURTHER RESOLVED,** that NERC staff is directed to provide an update on this effort in May and August, and present its recommendations to the Board at the December 2022 meeting.

Summary
NERC Staff presented its review of the body of rules regarding Reliability Standards development and its preliminary recommendations for standard processes improvements at the May 12, 2022 Board meeting. Several of the recommendations call for revisions to the NERC rules governing standards (Section 300 of the Rules of Procedure or the Standard Processes Manual, Appendix 3B to the Rules of Procedure). Other recommendations call for changes or clarifications in the ways NERC or the Standards Committee administers the existing rules or processes.

In accordance with the Board's February 2022 directive, NERC Staff recommended convening a stakeholder panel to provide feedback on the preliminary recommendations. This feedback would inform the final recommendations to be presented to the Board at the December 2022 meeting. The Board appointed Roy Thilly as the chair of the stakeholder panel, with the following individuals as members of the panel:

Representing the Board:

- Sue Kelly
- Rob Manning

Representing the MRC:

- Roy Jones
- Jennifer Flandermeyer
- Paul Choudhury
- Matt Schuerger

Representing the NERC standing committees:

- Amy Casuscelli (Standards Committee)
- Brian Slocum (Reliability Issues Steering Committee)
- Scott Tomashefsky (Compliance and Certification Committee)
- Greg Ford (Reliability and Security Technical Committee)
- Rich Hydzick (Reliability and Security Technical Committee)

NERC staff support:

- Howard Gugel
- Mechelle Thomas
- Lauren Perotti
- Marisa Hecht
- Latrice Harkness
- Tina Buzzard

An update on the progress of the stakeholder panel will be provided.

Critical Infrastructure Protection Board Resolution Update

Action
Information

Background
The below information provides updates on activities in support of resolutions approved by the 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 the Supply Chain Standards, consist of Reliability Standard CIP-013-1 and revised Reliability Standards 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 NERC Board approved a resolution at this meeting endorsing this action. The Project 2020-03 (Supply Chain Low Impact Revisions) standard drafting team developed standards modifications to address this resolution, and the latest draft is currently out for comment and ballot.

CIP-002 Resolutions

On May 14, 2020, the Board adopted proposed Reliability Standard CIP-002-6. The proposed Reliability Standard CIP-002-6 addressed the recommendation from the Version 5 Transition Advisory Group2 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, the 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 Board took action at its February 4, 2021 to withdraw CIP-006-6. In doing so, they approved the following resolution:

***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 is currently addressing the above resolutions. First, NERC filed notice of withdrawal of its CIP-002-6 petition with FERC on February 5, 2021. Second, NERC and industry initiated a

field test under the NERC Rules of Procedure, Appendix 3A Section 6, as part of standards development Project 2021-03 CIP-002 Transmission Owner Control Centers to address the resolution regarding the applicability of CIP Reliability Standards to certain Control Centers. Finally, NERC assembled a team to review the risk posed by low impact BES Cyber Systems to address the resolution regarding a broader review and analysis of low impact cyber facilities. This team is currently working on a whitepaper. NERC staff will provide an update on these activities addressing low impact BES Cyber Systems.

Semi-Annual Review of the Achievements of the 2022 Work Plan Priorities

Action
Update

Background
The Board of Trustees (Board) approved the 2022 ERO Enterprise Work Plan Priorities (2022 Priorities) at its November 2021 meeting. The 2022 Priorities identify key objectives that align closely with the ERO Enterprise Long-Term Strategy, and overarching core near-term priorities for 2022 were identified as follows:

- Improve Bulk Electric System (BES) resilience for wide-spread long-term extreme temperature events
- Deepen planning and operating focus beyond capacity adequacy, towards energy sufficiency
- Enhance and develop new Standards: cyber (bright-line criteria), weatherization, energy sufficiency and inverter performance
- Expand the impact of the E-ISAC through enhanced information sharing, communications, and monitoring of critical security threats

Summary
Overall, all associated objectives with the 2022 Priorities are currently on track to be achieved by the end of 2022 except for one related to modifying existing Reliability Standards for relay commissioning, which will not be reached in light of other standards priorities. NERC is providing a status update for each objective as part of the August 18, 2022, Board open meeting presentation materials as an informational item. NERC leadership will be available to answer any questions on the progress of the 2022 Priorities as needed during the meeting. A year-end review of the achievements of the 2022 Priorities will be provided during the February 2023 Board meetings.

August 2022 Risk Registry

Action
Update

Background
In an effort to continually monitor the existing risks to the bulk power system (BPS) and manage the efforts of the ERO Enterprise to actively identify and address new threats, NERC created a Risk Registry. This registry overlaps some with the risk profiles identified in the latest ERO Reliability Risk Priorities Report (RISC report) and other risks identified in past reports and assessments, but the Risk Registry focuses on reporting current risks to the BPS, not just emerging ones.

This Risk Registry identifies public ERO Enterprise "tasks" to address current risks to the BPS. The most critical and high priority tasks currently address extreme natural events, security threats, and inverters. Future versions of the Risk Registry will be used as project/resource management tool, and it will eventually include a risk prioritization that is reviewed with RISC. NERC is providing this status update as part of the August 18, 2022, Board open meeting as an informational item. NERC leadership will be available to answer any questions on the progress of the Risk Registry as needed during the meeting.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC Risk Registry

August 2022

RELIABILITY | RESILIENCE | SECURITY




3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

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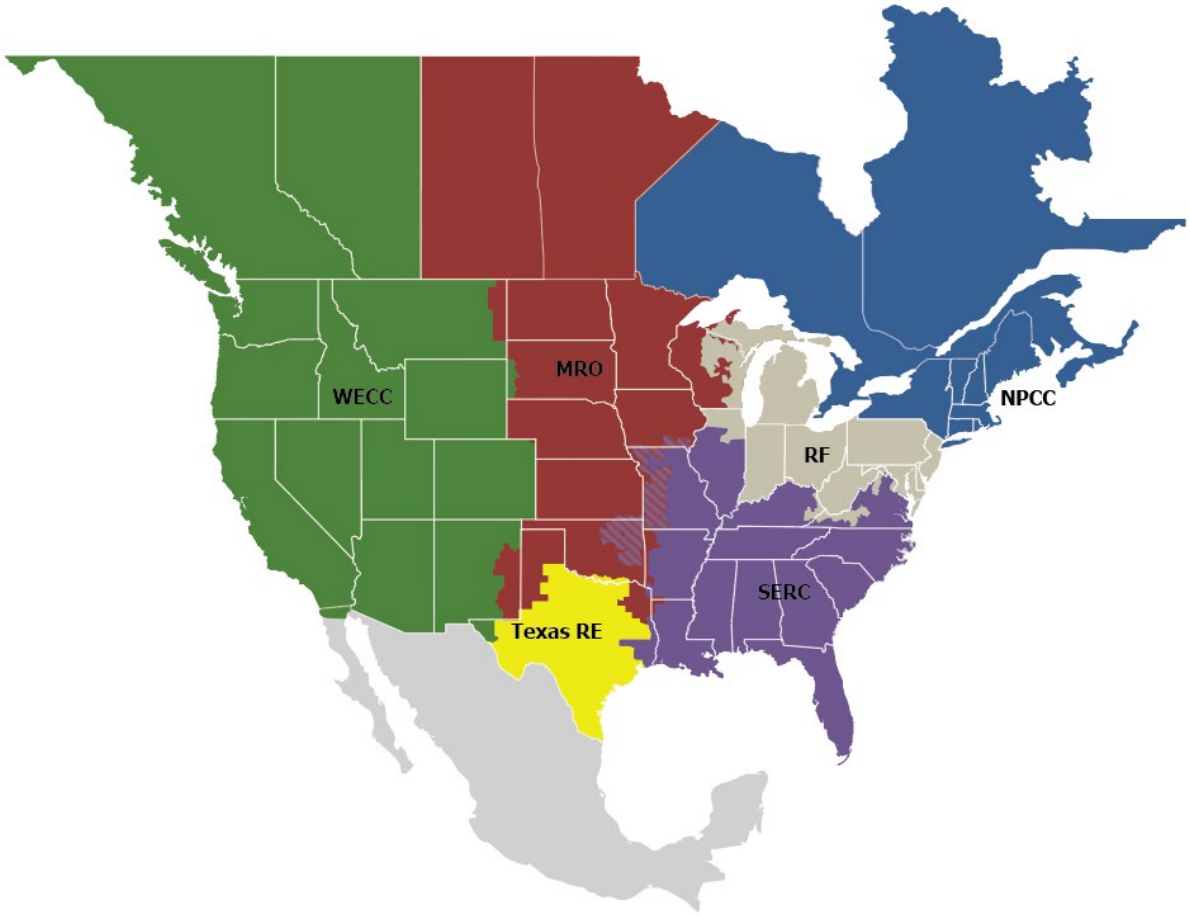
Preface

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 (TOs)/Operators (TOPs) 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

Executive Summary

The Risk Registry is a culmination of inputs from various sources that report on NERC-supported efforts.[1] The efforts or "tasks" are the result of identified risks to the BPS. There is some overlap with other documents.[2] The Risk Registry focuses on current and projected risks while other reports may have different time horizons.

The Risk Registry also groups tasks by Risk Profiles. The Reliability Issues Steering Committee (RISC) established the Risk Profiles. The Risk Profiles include Security Risks, Extreme Natural Events, Critical Infrastructure Interdependencies and Grid Transformation. The majority of the tasks fall under Grid Transformation and Security. Although Critical Infrastructure Interdependencies is a profile, very few items are being actively monitored in this category via the Risk Registry.

[1] This report does not contain any non-public information or information that cannot be shared outside of the ERO Enterprise, nor does this report contain any information on initiatives or projects that have not started. All tasks listed are "in progress." Future iterations of this report will include resource allocations and will be used as a project management/reporting tool.

[2] State of Reliability, Seasonal Assessments, Long Term Reliability Assessment, and RISC ERO Reliability Risk Priorities Report

Introduction

Background

To continually monitor the existing risks to the BPS and manage the efforts of the ERO Enterprise to actively identify and address new threats, NERC is working with the Reliability Issues Steering Committee (RISC) to create and refine a Risk Registry. This registry will align with the risk profiles identified in the latest RISC ERO Reliability Risk Priorities Report (RISC report), but the Risk Registry will focus on activities addressing current and emerging risks.

The Risk Registry currently provides an inventory of risks identified through various stakeholder inputs that include industry outreach, the ERO Enterprise (including the NERC Board of Trustees), RISC, and stakeholder committees. The Risk Registry will provide the basis for risk prioritization that will be developed with the RISC .

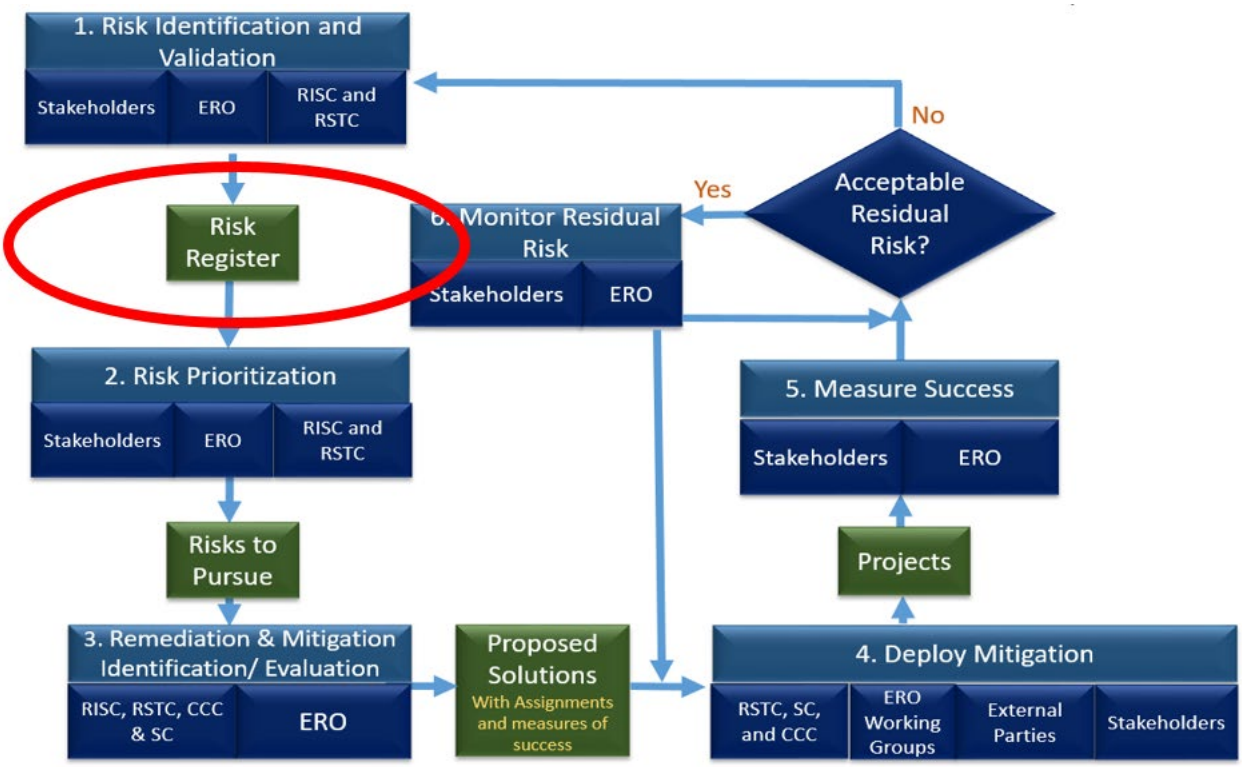


Figure I. Risk Management Flow Chart/Model

The Risk Registry provides an inventory of all of the critical and high priority projects NERC is supporting, and will track the effort to assess, mitigate, or monitor[3] the known risks to the BPS.

[3] Assess refers to items modeling, planning, simulation, and data gathering stages. Mitigate refers to items that require industry or ERO Enterprise actions, and monitor refers to items that may transition to a mitigation depending on the analysis and status of the risks.

Chapter 1: Critical and High Priority Tasks

Risk Registry

The Risk Registry is organized by "tasks" that are identified as projects or efforts by NERC departments or one of the standing committees. The tasks are further broken down by Risk Profiles (as defined in the RISC report),[4] Risk Registry priority,[5] Risk Stage,[6] and task type.[7]

Review of Critical and High Priority Tasks

The critical "Risk Categories" are: 1) energy adequacy, 2) cyber security, 3) extreme natural events (namely cold weather preparedness), and 4) inverters.[8] Any tasks in the risk registry that addressed these areas were given a "Critical" or "High" priority to be included in the Risk Registry. **Figure 1.1** represents all tasks that were in progress at the end of 2021.

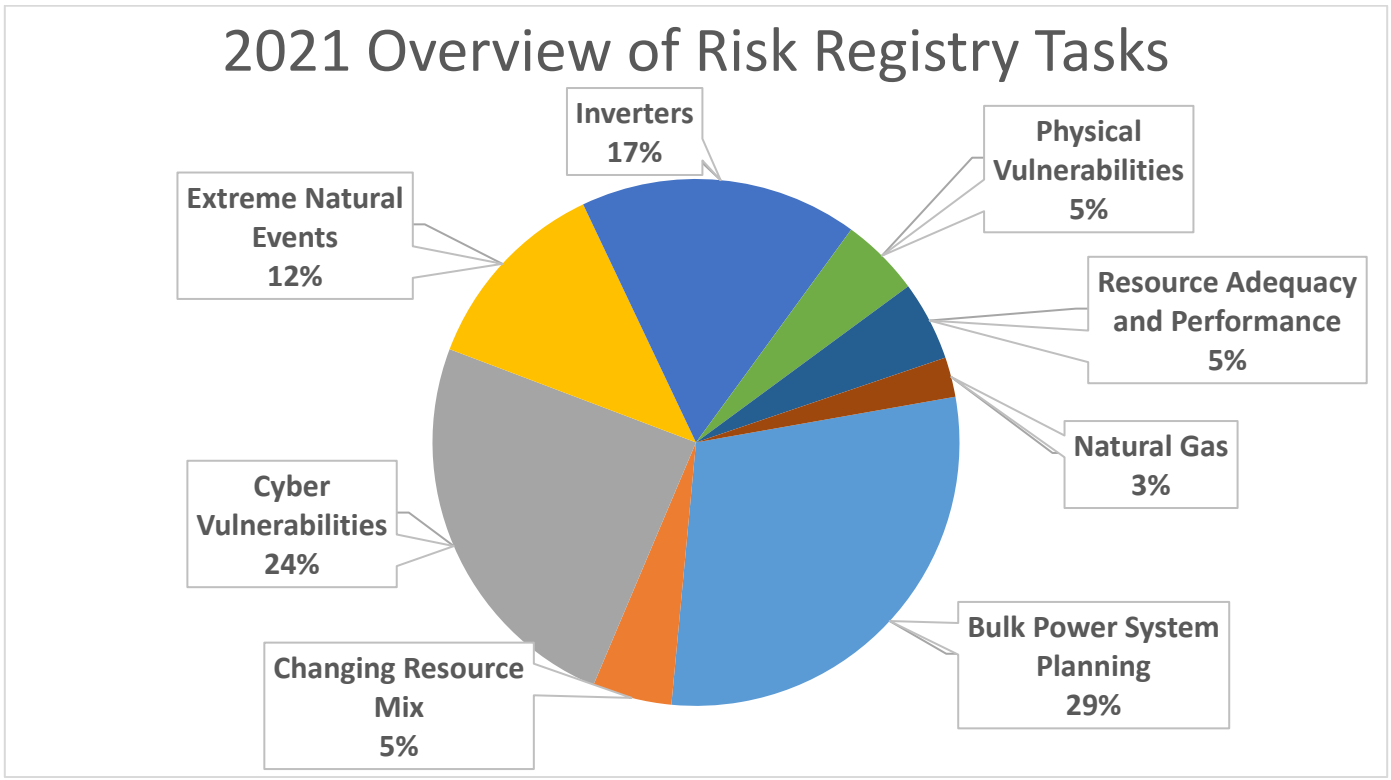


Figure 1.1: Review of 2021 Critical and High Priority Risk Registry Tasks

2022 Overview

Several projects were completed by year-end 2021, but numerous projects have also commenced in 2022 and subsequently been added to the Risk Registry. Several of the items that have recently been added to the Risk Registry are projects to address the recommendations that came out of the 2021 joint inquiry by FERC, NERC, and the Regional

[4] Critical Infrastructure Interdependencies, Extreme Natural Events, Grid Transformation, and Security Risks (Cyber and Physical risks).
[5] Critical, High, and Normal.
[6] Assess, Mitigate, and Monitor.
[7] Analysis, Assessment, Collaboration, Coordination, Data Collection, Event, Guidance, Implement, Lessons Learned, Outreach, Practice Guide, Reference Document, Reliability Guideline, Report, Review, SAR/RFI, Standard Project, Webinar, White Paper, and Workshop.
[8] These risk categories were established based off annual work priorities and recent events.

Entities to address the outages in Texas and parts of the central United States.[9] Most of these cold weather items have been assigned to several subcommittees of the Reliability and Security Technical Committee (RSTC), and these new projects represent the largest change in the number of projects generally in the Risk Registry.

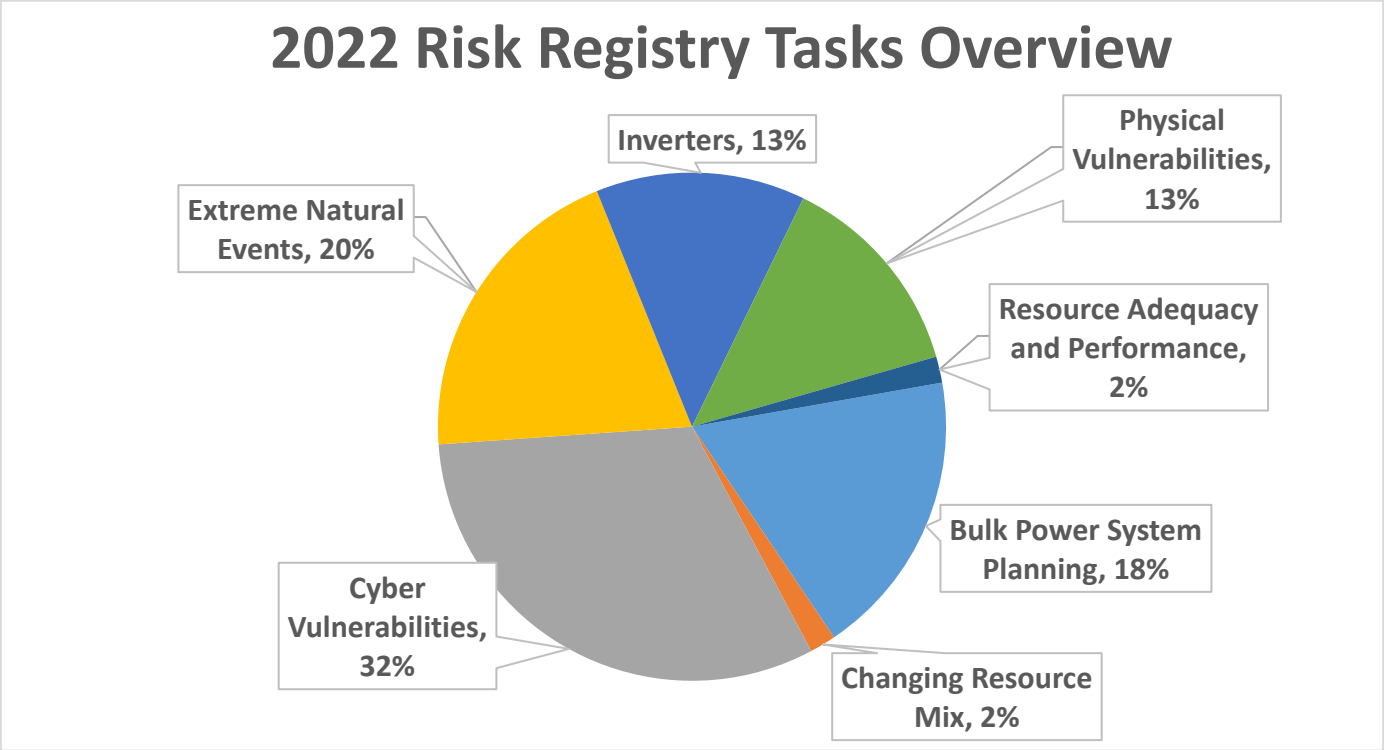


Figure 1.2: Overview of Current 2022 Critical and High Priority Risk Registry Tasks

Security Risks (Physical and Cyber Security)

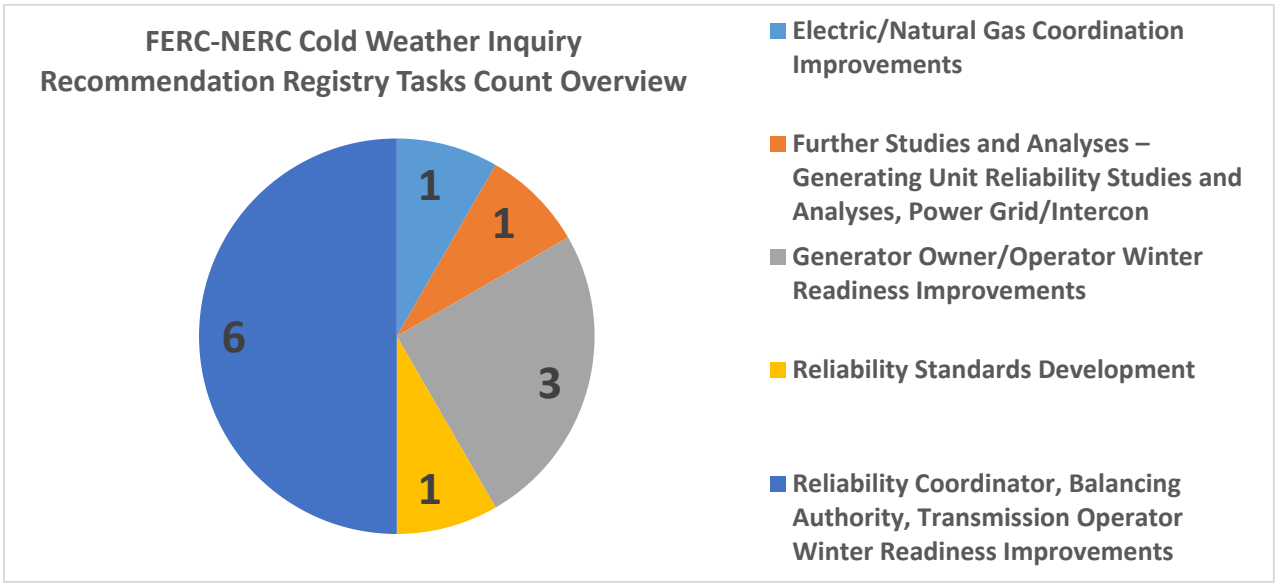
The second largest jump in number of projects are in the Risk Profile for Security Risk, which includes both Cyber and Physical security threats to the BPS. There were 10 tasks for Security Risks at the end of 2021, and now there are currently 30 tasks listed as critical or high priority.

[9] Available at: The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission.

Figure 1.3: Number of Critical and High Priority Tasks by Security Risks (RISC Profile)

Extreme Natural Events/Cold Weather Preparedness

As noted above several projects have been added to the RSTC workplan to address the joint inquiry stemming from the 2021 winter outages.



Inverters

The current tasks or efforts in progress for inverter-based resources (IBR) ranked with a critical or high priority are below:

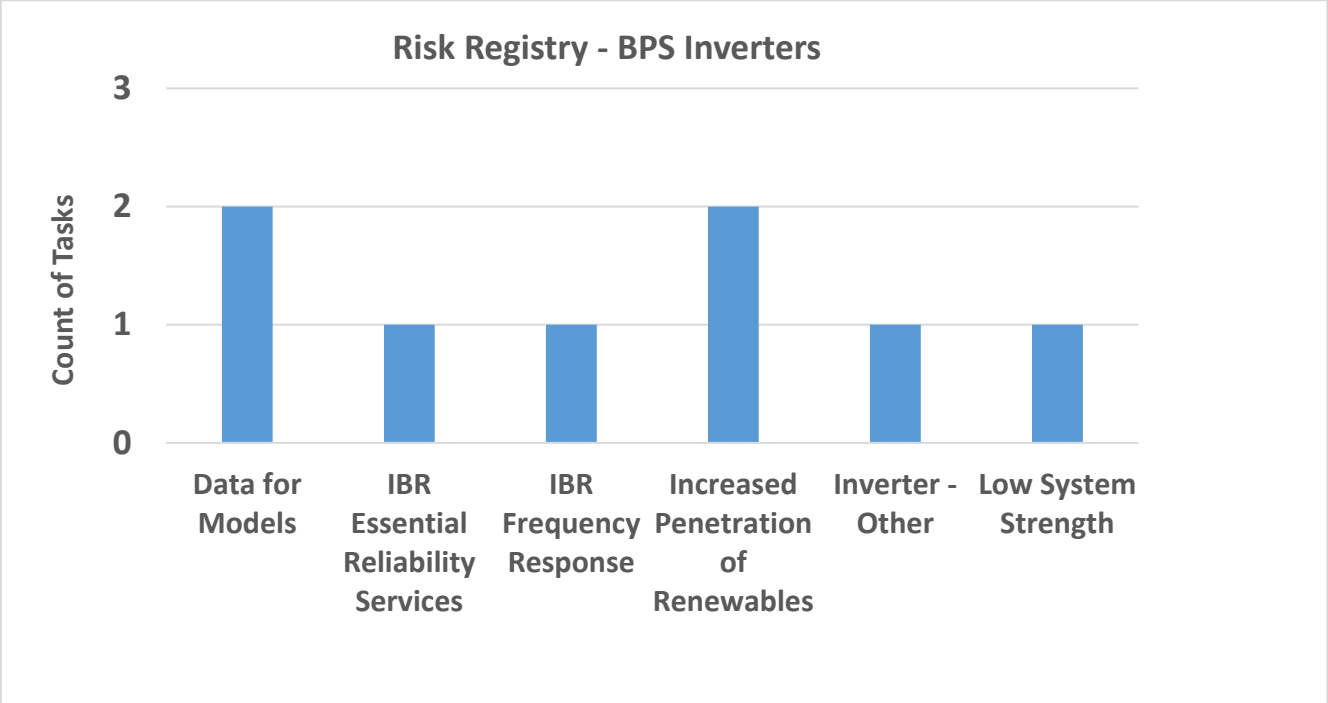


Figure 1.4: Number of Critical and High Priority Tasks for Inverters (Risk Category)

Chapter 2: Risk Profile Tasks

Risk Profile Tasks

The Risk Registry also groups the tasks by RISC's Risk Profiles: Critical Infrastructure Interdependencies, Extreme Events, Grid Transformation, and Security Risks (Cyber and Physical risks). The tasks are categorized to represent the objectives of each item on the Risk Registry.

The Grid Transformation includes the shift away from conventional synchronous central-station generators toward a new mix of generation resources, fuel sources, and fuel delivery. Extreme Events include extreme events such as wildfires, extreme temperatures, large storms, and geomagnetic disturbances (GMD) that can have widespread impacts. Security Risks encompass threats that leverage physical or cyber vulnerabilities to compromise other portions of the BPS. Critical Infrastructure Interdependencies highlight the need for utilities to rely on other sectors in order to operate.

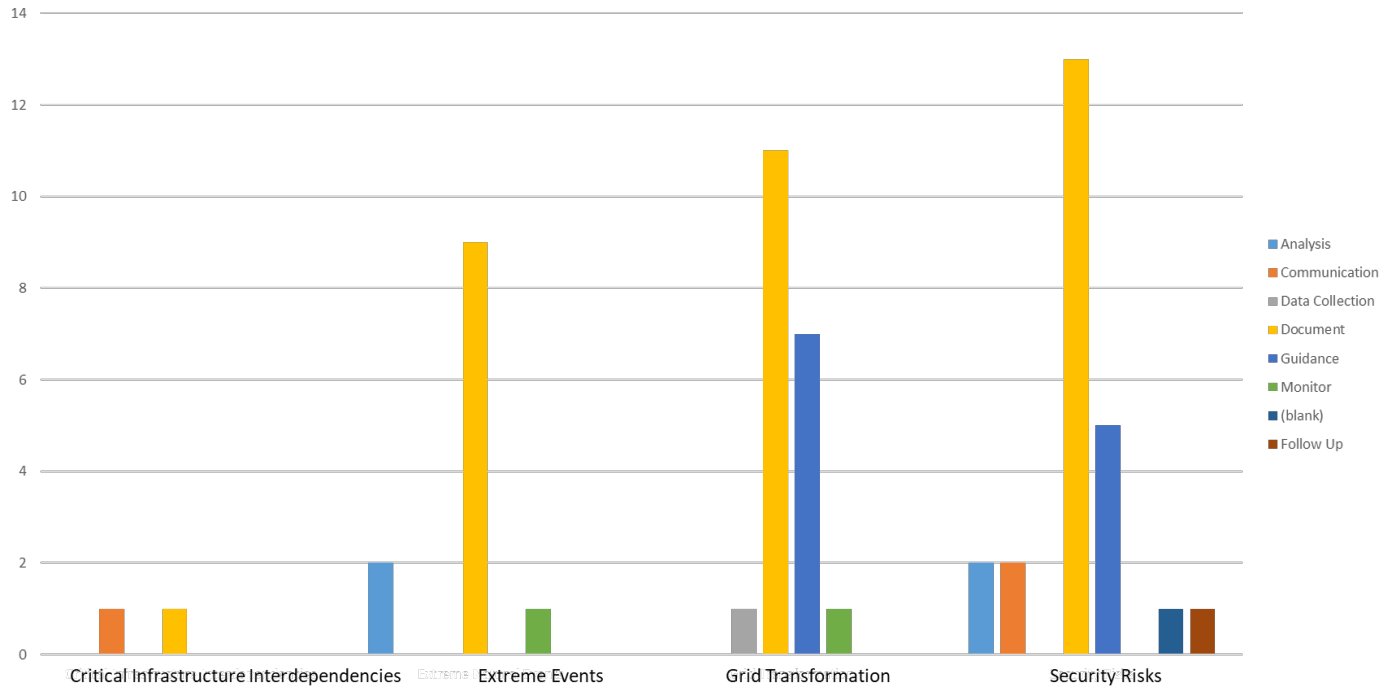


Figure 2.1: Number of Critical and High Priority Tasks by Risk Profiles

Table 2.1: Risk Registry by Risk Profiles			
Critical Infrastructure Interdependencies	**Extreme Events**	**Grid Transformation**	**Security Risks**
Partner with National Labs on Supply Chain risks	Cold Weather REC 9 - Winter Season Reserve Margin Input and Assumptions	5-White Paper: BPS-Connected IBR and Hybrid Plant Capabilities for Frequency Response	BES Cyber System Information in the Cloud - project report
Project 2016-02 Modifications to CIP Standards	Cold Weather REC 10 - Assess Impact of Changes to Load Shedding Plans on Seasonal Reliability	8-Reliability Guideline: Recommended Approach to Interconnection Studies for BPS-Connected Inverter-Based Resources	BPS Performance Expectations for electromagnetic pulse (EMP) events
	Cold Weather RECS 20 and 25 - Assess Information from Transfer Studies and System Studies on Reliability of Planned System	A1 - Reliability Guideline Review: Tranche 2	C10 - White Paper: Security Risks Posed by DER and DER Aggregator
	Cold Weather REC 24 - Analyze the Potential BPS Reliability Impacts of Federal and State/Provincial Entity Actions to Address Natural Gas Supply Limitations to Generators in Extreme Cold	A2 - Reliability Guideline Review: Tranche 3	Coordination with Other Sectors about Electromagnetic Pulse (EMP) issues and activities
	EGWG Follow up #8 on the February 2021 Cold Weather Grid Operations	C2-Reliability Guideline: Communication and Coordination Strategies for Transmission Entities and Distribution Entities regarding Distributed Energy Resources	Electromagnetic Pulse (EMP) Research Gaps
	ERATF/RTOS Follow up #12 on the February 2021 Cold Weather Grid Operations	C6-NERC Reliability Standards Review White Paper	Hardening Equipment to mitigate effects of Electromagnetic Pulse (EMP)
	ERATF/RTOS Follow up #23 on the February 2021 Cold Weather Grid Operations	C9 Reliability Guideline Review: Tranche 3	Identifying Assets that are critical to recovering from an electromagnetic pulse (EMP) event
	Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination	ERATF - 2021 RISC Report Recommendations	Industry and Public Education about electromagnetic pulse (EMP) threats

Table 2.1: Risk Registry by Risk Profiles			
Critical Infrastructure Interdependencies	**Extreme Events**	**Grid Transformation**	**Security Risks**
	Project 2022-03 Energy Assurance with Energy-Constrained Resources	M6-Modeling Distributed Energy Storage and Multiple Types of DERs	Monitor and report research and development efforts pertaining to electromagnetic pulse (EMP) threats
	Review intermittent Generation to Improve Load Forecasts	Project 2020-02 Transmission-connected Dynamic Reactive Resources	Periodic Review of Supply Chain Security Guidelines
	RISC Cold weather Recommendation 22 – SPCWG	Project 2020-05 Modifications to FAC-001-3 and FAC-002-2	Project 2020-03 Supply Chain Low Impact Revisions
	RS Review of Load Forecasting Impact on BAs	Project 2020-06 Verifications of Models and Data for Generators	Project 2020-04 Modifications to CIP-012-1
		Project 2021-04 Modifications to PRC-002-2	Reduce the number of critical facilities
		S4B-White Paper: DER Impacts to UVLS Programs	Reliability Guideline: Cyber Intrusion Guide for System Operators
		S5-White Paper: Beyond Positive Sequence RMS Simulations for High DER Penetration Conditions	Respond to directives and requests of the NERC RSTC
		Section 1600 Data Request for GADS	Security Guideline: Open Source Software
		Standards Committee Engagement	Security Guideline: Risk Management Lifecycle
		Technical Report: Energy Transition to Higher Penetrations of Inverter-Based Resources	Security Guideline: Secure Equipment Delivery
		V2-Reliability Guideline: DER Forecasting Practices and Relationship to DER Modeling for Reliability Studies	Security Guideline: Vendor Risk Management Lifecycle

Table 2.1: Risk Registry by Risk Profiles			
Critical Infrastructure Interdependencies	**Extreme Events**	**Grid Transformation**	**Security Risks**
			Security or implementation guidance to support development of Reliability Standards
			Tools and Methods for assessing Electromagnetic Pulse (EMP) vulnerabilities
			Tools to support internal controls initiatives
			Utility Essential Security Practices Whitepaper
			Whitepaper: Zero Trust for OT Cybersecurity

Chapter 3: Next Steps

NERC will collaborate with the RSTC and other committees to add additional tasks identified as emerging risks or tasks to track as part of this process. The Risk Registry will be updated periodically, and future versions will be reviewed by the RISC as the risk prioritization is developed.

Appendix A: Raw Data

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
5- Cold Weather REC 9 - Winter Season Reserve Margin Input and Assumptions	Workplan item to address Cold Weather Inquiry Report recommendation 9. RAS will use the FERC NERC RE Staff Joint Cold Weather Outage Inquiry Report findings related to winter reserve margin inputs and assumptions to inform the 2022-23 and 2023-24 NERC Winter Reliability Assessments (WRAs). Specifically, RAS, with support from the NERC Probabilistic Assessment Working Group (PAWG), will: • Enhance WRA request materials to collect information about Assessment Area inputs, assumptions, and best practices for determining anticipated resources, peak loads, managing resource and demand uncertainty, and anticipated winter reserve margins; • Analyze assessment inputs, reported anticipated reserve margins for winter seasons, and observations from the Joint Inquiry report; and; • Assess adequacy of resources to meet winter peak conditions and scenarios. Findings will be included in future WRAs.	Extreme Natural Events		Critical	Assess

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
5-White Paper: BPS-Connected IBR and Hybrid Plant Capabilities for Frequency Response	White paper on utilizing the full capabilities of inverter-based resources and hybrid plants for providing frequency response.	Grid Transformation	https://www.nerc.com/comm/PC/Pages/Inverter-Based-Resource-Performance-Task-Force.aspx	Critical	Mitigate
6- Cold Weather REC 10 - Assess Impact of Changes to Load Shedding Plans on Seasonal R	Workplan item to address Cold Weather Inquiry Report recommendation 10. RAS will collect and analyze information on changes to rotating, manual load shedding plans and the potential effects these changes may have on mitigating impacts to firm load during energy emergencies in wide-area, long-duration extreme cold events. Findings will be included in future WRAs. RAS will coordinate collection and analysis with the RTOS.	Extreme Natural Events		Critical	Assess
7- Cold Weather RECS 20 and 25 - Assess Information from Transfer Studies and System Studies on Reliability of Planned System	Workplan item to address Cold Weather Inquiry Report recommendations 20 and 25. RAS will collect information, analyze, and report on results of the following system studies performed by NERC entities that are relevant to seasonal or long-term reliability: • Bi-directional seasonal transfer studies between adjacent operating entities, including identified constraints that are anticipated in extreme weather events spanning multiple RC/BA areas. (RAS will coordinate collection and analysis with the RTOS)	Extreme Natural Events		Critical	Assess

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	• Transfer studies identifying constraints between sub-areas or load pockets. (RAS will coordinate collection and analysis with the RTOS) • ERCOT studies to evaluate additional links between ERCOT and other interconnections in mitigating energy emergencies or improving black start capabilities				
8- Cold Weather REC 24 - Analyze the Potential BPS Reliability Impacts of Federal and State/Provincial Entity Actions to Address Natural Gas Supply Limitations to Generators in Extreme Cold	Workplan item to address Cold Weather Inquiry Report recommendation 24. • RAS will collect and analyze information for use in future LTRAs on potential BPS reliability impacts of Federal and State/Provincial entity actions to address natural gas supply limitations to generators in extreme cold conditions and/or scenarios.	Extreme Natural Events		Critical	Assess
8-Reliability Guideline: Recommended Approach to Interconnection Studies for BPS-Connected Inverter-Based Resources	Focused guidance on improving the study process for BPS-connected inverter-based resources, particularly with increasing penetrations of these resources and the growing complexity of performing sufficient studies to ensure BPS reliability.	Grid Transformation	https://www.nerc.com/comm/PC/Pages/Inverter-Based-Resource-Performance-Task-Force.aspx	Critical	Mitigate
A1 - Reliability Guideline Review: Tranche 2	The Analysis team to combine the three DER modeling reliability guidelines to submit a single guideline per the RSTC's Triennial review approved in December 2021.	Grid Transformation		High	Mitigate

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
Reliability Guideline Review: Tranche 3	The Analysis team to combine the DER Model verification and DER Data collection reliability guidelines to submit a single guideline per the RSTC's Triennial review approved in December 2021	Grid Transformation		High	Mitigate
BES Cyber System Information in the Cloud - project report	An overview of the processes and outcomes from a review of an entity's Microsoft Azure BCSI in the Cloud tabletop exercise	Security Risks		High	Mitigate
BPS Performance Expectations for electromagnetic pulse (EMP) events	Establish performance expectations for all sectors of the BPS regarding a predefined electromagnetic pulse (EMP) event.	Security Risks		High	Assess
C10 - White Paper: Security Risks Posed by DER and DER Aggregator	Follow up White Paper on the security risk posed by DER and DER aggregator. Covers both physical and cyber related impacts.	Security Risks		High	Assess
C2-Reliability Guideline: Communication and Coordination Strategies for Transmission Entities and Distribution Entities regarding Distributed Energy Resources	Develop recommended strategies to encourage coordination between Transmission and Distribution entities on issues related to DER such as information sharing, performance requirements, DER settings, etc.	Grid Transformation	https://www.nerc.com/comm/PC/Pages/System-Planning-Impacts-from-Distributed-Energy-Resources-Subcommittee-(SPIDERWG).aspx	High	Mitigate
C6-NERC Reliability Standards Review White Paper	White Paper reviewing NERC Reliability Standards and impacts of DER.	Grid Transformation	https://www.nerc.com/comm/PC/Pages/System-Planning-Impacts-from-Distributed-Energy-Resources-Subcommittee-(SPIDERWG).aspx	High	Mitigate

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
C9 Reliability Guideline Review: Tranche 3	*The Coordination team to review the BPS Reliability Perspectives on the Adoption of 1547-2018 reliability guideline per the RSTC's Triennial review approved in December 2021.*	Grid Transformation		High	Mitigate
Coordination with Other Sectors about Electromagnetic Pulse (EMP) issues and activities	Develop guidance for the electricity industry about coordinating with interdependent utility sectors	Security Risks		High	Assess
EGWG Follow up #8 on the February 2021 Cold Weather Grid Operations	February 2021 Cold Weather Grid Operations: Final Findings and Recommendations, FERC, NERC and Regional Entity Joint Staff Inquiry	Extreme Natural Events		Critical	Mitigate
EGWG Follow up #8 on the February 2021 Cold Weather Grid Operations	February 2021 Cold Weather Grid Operations: Final Findings and Recommendations, FERC, NERC and Regional Entity Joint Staff Inquiry	Extreme Natural Events		Critical	Mitigate
Electromagnetic Pulse (EMP) Research Gaps	Support additional research to close existing knowledge gaps into the complete impact of an EMP event to understand vulnerabilities,	Security Risks		High	Assess

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	develop mitigation strategies, and plan response and recovery efforts				
ERATF - 2021 RISC Report Recommendations	1.5 The RSTC should develop methods, processes, tools, metrics, and/or standard authorization requests that are needed to address energy security	Grid Transformation		Critical	Mitigate
ERATF/RTOS Follow up #12 on the February 2021 Cold Weather Grid Operations	February 2021 Cold Weather Grid Operations: Final Findings and Recommendations, FERC, NERC and Regional Entity Joint Staff Inquiry	Extreme Natural Events		Critical	Mitigate
ERATF/RTOS Follow up #23 on the February 2021 Cold Weather Grid Operations	February 2021 Cold Weather Grid Operations: Final Findings and Recommendations, FERC, NERC and Regional Entity Joint Staff Inquiry	Extreme Natural Events		Critical	Mitigate
Guidance documentation on Supply Chain Risk Management	Develop and maintain security guidelines or other products to help industry mitigate the threats posed by supply chain vulnerabilities	N/A		Critical	Assess
Hardening Equipment to mitigate effects of Electromagnetic Pulse (EMP)	Support efforts to design equipment specifications for the electric sector utility industry that address EMP hardening and mitigation strategies	Security Risks		High	Assess
Identifying Assets that are critical to	Develop guidance to the industry on how to identify and prioritize hardening of assets	Security Risks		High	Assess

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
recovering from an electromagnetic pulse (EMP) event	that are needed to maintain and restore critical BPS operations				
Industry and Public Education about electromagnetic pulse (EMP) threats	Develop (or reference) educational material about EMPs and their impact to intelligent electronic devices and BPS reliability to inform industry and general public	Security Risks		High	Assess
Inter-Entity Short Circuit Model	Technical paper on the challenges of updating inter-entity short circuit models	N/A		Critical	Assess
M6-Modeling Distributed Energy Storage and Multiple Types of DERs	SPIDERWG will dig into technical considerations of modeling distributed energy storage, specifically distributed battery energy storage (D-BESS). The group will also consider how to model multiple types of DERs, including D-BESS and distributed solar PV (D-PV). Lastly, the group will focus on forecasting and dispatch assumptions for D-BESS. SPIDERWG will determine the level of guidance or reference materials needed once discussions begin. Task to be coordinated with Studies sub-group.	Grid Transformation	https://www.nerc.com/comm/PC/Pages/System-Planning-Impacts-from-Distributed-Energy-Resources-Subcommittee-(SPIDERWG).aspx	High	Assess
Monitor and report research and development efforts pertaining to electromagnetic pulse (EMP) threats	Communicate to the industry via technical workshop and/or other methods the current status of research pertaining to EMP and EMP-related national security initiatives that impacts the BPS	Security Risks		High	Assess
Partner with National Labs on Supply Chain risks	Continue work with the National Labs through a partnership to identify vulnerabilities and develop mitigation practices. The Supply Chain security risks to the industry are significant and growing. A partnership between the SCWG and the	Critical Infrastructure Interdependencies	Critical	Assess	Partner with National Labs on Supply

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	National Labs will coordinate the important work of both groups to reduce risk to critical infrastructure. The skills and expertise of the National Labs can continue the development journey for documents of the SCWG.				Chain risks
Periodic Review of Supply Chain Security Guidelines	Supply Chain Security Guidelines have been developed for industry and are scheduled for periodic reviews.	Security Risks		Critical	Assess
Project 2016-02d Modifications to CIP Standards	The Version 5 Transition Advisory Group (V5 TAG) transferred issues to the Version 5 SDT that were identified during the industry transition to implementation of the Version 5 CIP Standards.	Critical Infrastructure Interdependencies	Project Page	Critical	Mitigate
Project 2020-02 Transmission-connected Dynamic Reactive Resources	Dynamic reactive resources used to provide Essential Reliability Services (ERS) in the BES include generation resources (rotating machine and inverter-based) as well as transmission connected dynamic reactive resources (power-electronics based). Existing Reliability Standards for verifying the capability, modeling and performance of dynamic reactive resources are only applicable to Facilities comprising generation resources.	Grid Transformation	Project Page	Critical	Mitigate
Project 2020-03 Supply Chain Low Impact Revisions	This project will address the NERC Board resolution adopted at its February 2020 to initiate a project to modify Reliability Standard CIP-003-8 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	Security Risks	Project Page	Critical	Mitigate

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	are initiated; and (3) disable active vendor remote access when necessary.				
Project 2020-04 Modifications to CIP-012-1	The purpose of this project is to address a directive issued by the Federal Energy Regulatory Commission (FERC) in Order No. 866 to develop modifications to the CIP Reliability Standards to require protections regarding the availability of communication links and data communicated between the bulk electric system Control Centers**.**	Security Risks	Project Page	High	Mitigate
Project 2020-05 Modifications to FAC-001-3 and FAC-002-2	The NERC Inverter-based Resource Performance Task Force (IRPTF) undertook an effort to perform a comprehensive review of all NERC Reliability Standards to determine if there were any potential gaps or improvements based on the work and findings of the IRPTF. The IRPTF identified several issues as part of this effort and documented its findings and recommendations in a white paper. The "IRPTF Review of NERC Reliability Standards White Paper" was approved by the Operating Committee and the Planning Committee in March 2020. Among the findings noted in the white paper, the IRPTF identified issues with FAC-001-3 and FAC-002-2 that should be addressed.	Grid Transformation	Project Page	Critical	Mitigate
Project 2020-06 Verifications of Models and Data for Generators	Standards Authorization Request (SAR) for MOD-026-1 and MOD-027-1 regarding dynamic model verification. MOD-026-1 and MOD-027-1 require, among other things, GOs to provide verified dynamic models to their Transmission Planner (TP) for the purposes of power system planning studies.	Grid Transformation	Project Page	Critical	Mitigate

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	Both standards contain language that is specific to synchronous generators and is not applicable to inverter-based resources (IBRs). For example, sub-requirement 2.1.3 in MOD-026-1 states that each verification shall include "model structure and data including, but not limited to reactance, time constants, saturation factors, total rotational inertia…" The standards should be revised to clarify the applicable requirements for synchronous generators and IBRs. For example, total rotational inertia should not be required for IBRs, while voltage ride-through control settings should only be required of IBRs and not synchronous generators. Additionally, to some degree, all dynamic model parameters affect the response of a represented resource in dynamic simulations performed by power engineers. Accurate model response is required for the engineers to adequately study system conditions. Hence, it is crucial that all parameters in a model be verified in some way. However, a significant number of parameters in the models are not verified in the typical verification tests used to comply with MOD-026-1 and MOD-027-1. For example, the test currently used to comply with MOD-026-1 does not verify the model parameters associated with voltage control behavior during large disturbance conditions.				

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
Project 2021-04 Modifications to PRC-002-2	Standards Authorization Request (SAR) for PRC-002-2 addressing disturbance monitoring updates. The purpose of PRC-002-2 is to have adequate data available to facilitate analysis of BES disturbances. Requirements R1 and R5 specify where sequence of events recording (SER) and fault recording (FR) data, and where dynamic Disturbance recording (DDR) data, respectively, are required in the Bulk Electric System (BES). Formal Comment Period was posted on June 9, 2022 and open through July 25, 2022 for phase one. Ballot Pools Forming through July 8, 2022.	Grid Transformation		Critical	Mitigate
Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination	The primary purpose of this project is to address reliability related findings from the Federal Energy Regulatory Commission (FERC), NERC, and Regional Entity Joint Staff Inquiry into the February 2021 Cold Weather Grid Operations. The project scope will address nine recommendations for new or enhanced NERC Reliability Standards proposed by the report.	Extreme Natural Events	Project Page	Critical	Mitigate
Project 2022-03 Energy Assurance with Energy-Constrained Resources	This project will enhance reliability by requiring entities to perform energy reliability assessments to evaluate energy assurance and develop Corrective Action Plan(s) to address identified risks. Energy reliability assessments evaluate energy assurance across the Operations Planning, Near-Term Transmission Planning, and Long-Term Transmission Planning or equivalent time horizons by analyzing the	Extreme Natural Events	Project Page	Critical	Mitigate

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	expected resource mix availability (flexibility) and the expected availability of fuel during the study period.				
Reduce the number of critical facilities	Collaborate with SITES and other relevant groups to develop approaches to planning, models and simulations that will reduce the number of facilities that meet the criteria to be considered critical to reliability.	Security Risks	https://www.nerc.com/comm/RSTC/Pages/default.aspx	High	Mitigate
Reliability Guideline: Cyber Intrusion Guide for System Operators	Reliability Guideline: Cyber Intrusion Guide for System Operators (Approved by the Operating Committee on June 5, 2018)	Security Risks		Critical	Mitigate
Review intermittent Generation to Improve Load Forecasts	In performing their near-term load forecasts, Balancing Authorities should analyze how intermittent generation affects their ability to meet the peak load (including the effects of behind-the-meter intermittent generation) (for the entire footprint as well as sub-regions, such as MISO South and SPP's southern region), especially if peak load cannot be met without variable resources. Balancing Authorities should consider performing a 50/50 or 90/10 forecast for renewable resources three-to - five days before real time. (Winter 2022-2023)	Extreme Natural Events		Critical	Assess
RISC Cold weather Recommendation 22 – SPCWG	The SPCWG will review PRC-006-5 and determine if there is a need to make a change to PRC-006-5 to account for time based underfrequency generation tripping	Extreme Natural Events		Critical	Assess

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	and provide a recommendation on what those changes could entail by August 12, 2022.				
RS Review of Load Forecasting Impact on Bas	Balancing Authorities should have staff with specialized knowledge of how weather impacts load, including the effects of heat pump backup heating and other supplemental electric heating. Balancing Authorities should also broaden the scope of their near-term (seven-days prior to real-time) load forecast to include multiple models and sources of meteorological information to increase accuracy and should consider regional differences within their footprints. (Winter 2022-2023)	Extreme Natural Events		Critical	Assess
S4B-White Paper: DER Impacts to UVLS Programs	Short white paper on potential impacts of DERs on UVLS program design; leverage work of PRC-010 standards review (C6 task).	Grid Transformation	https://www.nerc.com/comm/PC/Pages/System-Planning-Impacts-from-Distributed-Energy-Resources-Subcommittee-(SPIDERWG).aspx	High	Mitigate
S5-White Paper: Beyond Positive Sequence RMS Simulations for High DER Penetration Conditions	*Considerations for high penetration DER systems and the need for more advanced tools (e.g., co-simulation tools) for studying DER impacts on the BPS.*	Grid Transformation	https://www.nerc.com/comm/PC/Pages/System-Planning-Impacts-from-Distributed-Energy-Resources-Subcommittee-(SPIDERWG).aspx	High	Mitigate
Section 1600 Data Request for GADS	NERC RoP GADS Section 1600 Data Reporting to collect and analyze GADS data: • Conventional - relevant design data and enhanced event reporting • Wind - connected energy storage and event reporting	Grid Transformation	Section 1600 Data Requests	Critical	Assess

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
	• Solar - plant configuration, performance and event data as well as equipment outage detail				
Security Guideline: Open Source Software	Revise/update content; add metrics; place on RG/SGTemplate Q3/Q4 2022	Security Risks		Critical	Assess
Security Guideline: Risk Management Lifecycle	Revise content, add metrics; place on RG/SGTemplate Q3/Q4 2022	Security Risks		Critical	Assess
Security Guideline: Secure Equipment Delivery	Revise content; add metrics; place on RG/SGTemplate Q3/Q4 2022	Security Risks		Critical	Assess
Security Guideline: Vendor Risk Management Lifecycle	Revise content and add metrics; place on RG/SG Template Q3/Q4 2022	Security Risks		Critical	Assess
Security or implementation guidance to support development of Reliability Standards	Support for standard development teams that request information or collaboration to address security issues	Security Risks		Critical	Assess
Standards Committee Engagement	SPIDERWG Coodination subgroup task to provide technical support to Standards Committee Projects from SARs that originated in SPIDERWG.	Grid Transformation		High	Assess
Technical Report: Energy Transition to Higher Penetrations of Inverter-Based Resources	Continuation of “Tabled Issues” . Discussion of IRPTF and NERC activities beyond those captured in the PRC-024-2 White Paper, as documented in the white paper. Discussion, analysis, and recommendations for continued improvements to inverter-based resource performance and NERC standards	Grid Transformation	https://www.nerc.com/comm/PC/Pages/Inverter-Based-Resource-Performance-Task-Force.aspx	Critical	Assess

Table A.1: Risk Registry Details For All Tasks In-Progress					
Task Name	**Description**	**RISC Profile**	**External Link**	**Risk Registry Priority**	**Risk Staging**
Tools and Methods for assessing Electromagnetic Pulse (EMP) vulnerabilities	Support development of tools and methods (and make available) for system planners and equipment owners to use in assessing EMP impacts on the BPS.	Security Risks		High	Assess
Tools to support internal controls initiatives	Ongoing task to support industry users by providing tools and resources for addressing security controls and relevant compliance outcomes.	Security Risks		Critical	Monitor
Utility Essential Security Practices Whitepaper	Develop guidance that addresses security protections for utility technologies that are not subject to compliance with the CIP Reliability Standards. Examples of those technologies include inverters, synchro-phasers, natural gas SCADA, etc. (Resources aligned with Electric-Gas Working Group (EGWG))	Security Risks		Critical	Mitigate
V2-Reliability Guideline: DER Forecasting Practices and Relationship to DER Modeling for Reliability Studies	Guidance providing how forecasting practices are linked to DER modeling for reliability studies. DER forecasting practices are important for accurately representing the correct amount and type of DER, particularly at an aggregate level representation for BPS studies.	Grid Transformation	https://www.nerc.com/comm/PC/Pages/System-Planning-Impacts-from-Distributed-Energy-Resources-Subcommittee-(SPIDERWG).aspx	High	Mitigate
Whitepaper: BES Operations in the Cloud	Breakdown concepts. Explain risks and challenges. Provide guidance and recommendations for adoption. Address cybersecurity and CIP compliance.	Grid Transformation		Critical	Assess
Whitepaper: Zero Trust for OT Cybersecurity	Define. Identify benefits, risks, challenges. Illustrate architecture. Provide guidelines and recommendations for adoption and CIP considerations.	Security Risks		Critical	Mitigate

Personnel Certification Governance Committee Report

Action
Information

Background
The Personnel Certification Governance Committee's (PCGC's) second quarter meeting was held in-person on May 17-18, 2022, in Salt Lake City, Utah. During the second quarter meeting, the PCGC discussed the System Operator Job Task Analysis (JTA), the Credential Maintenance Research Project (CMRP), and had discussions with the System Operator Certification Continuing Education Database (SOCCED) and exam vendors.

The purpose of the JTA is to provide the PCGC and the Exam Working Group (EWG) with current job analysis information received from NERC Certified System Operators (NCSO). The JTA is performed every three years and is used by the PCGC and the EWG to develop appropriate questions for the four NCSO exams.

The purpose of the CMRP is to examine credential maintenance practices with the intention of identifying possible evidence-based changes and/or enhancements to the System Operator Certification Program and the Credential Maintenance Program. The CMRP Task Force is made up of PCGC and Credential Maintenance Working Group (CMWG) members.

The PCGC determined that four in-person meetings were warranted in 2023 to discuss the research project results and to determine the changes that are needed to the programs

Summary
Since September 2021, NERC and the CMRP Task Force have worked closely with EPRI and EPRI's contractor Exceed Performance Solutions (EPS). EPS performed historical analysis on data provided from SOCCED, research and analysis comparing other certification programs, conducted industry surveys, interviews, and reviewed activities weekly with the CMRP Task Force.

EPRI will present the final presentation on their findings at the August PCGC meeting.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Agenda Item 7c
Board of Trustees Meeting
August 18, 2022

Reliability Standards

Quarterly Report

August 18, 2022

RELIABILITY | RESILIENCE | SECURITY




3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

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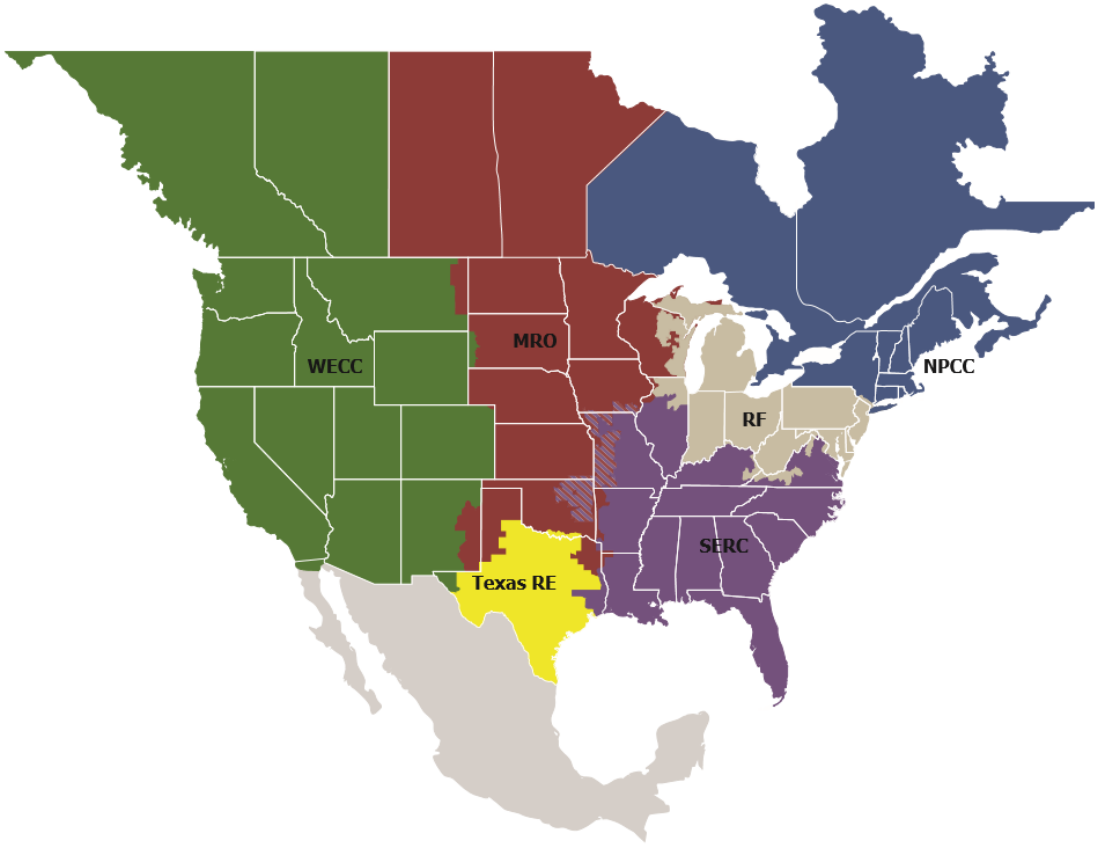
Preface

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.

November 2022 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: Modifications to PRC-024 (Generator Ride-through)
- 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
- Project 2021-06 Modifications to IRO-010 and TOP-003
- Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination
- Project 2021-08 Modifications to FAC-008
- Project 2022-01 Reporting ACE Definition and Associated Terms
- Project 2022-02 Modifications to TPL-001-5.1 and MOD-032-1
- Project 2022-03 Energy Assurance with Energy-Constrained Resources

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. While NERC's request remains pending, NERC is still considered an accredited developer.

Projects with Regulatory Directives

Table 1 below lists the current projects with regulatory directives. As of June 30, 2022, there is one standards-related directive to be resolved through standards development activities (not including non-standards related directives).[1]

[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.

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

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 2021 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.

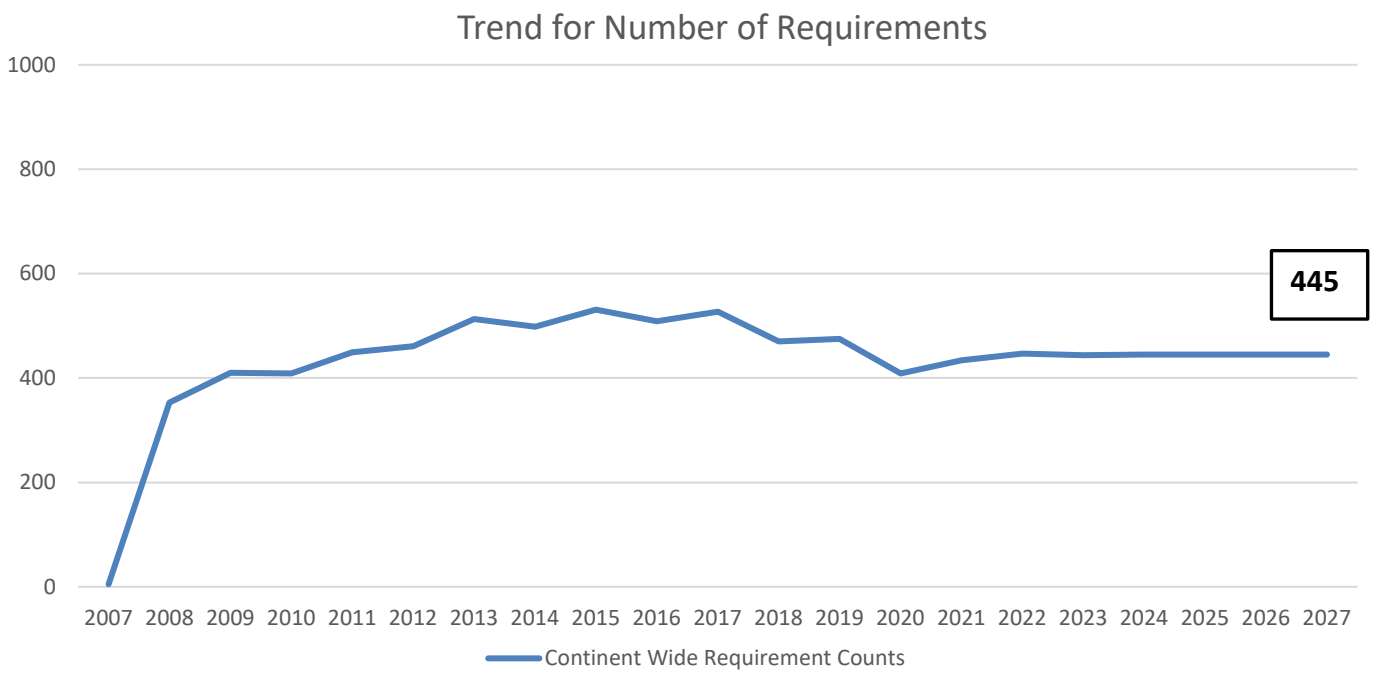
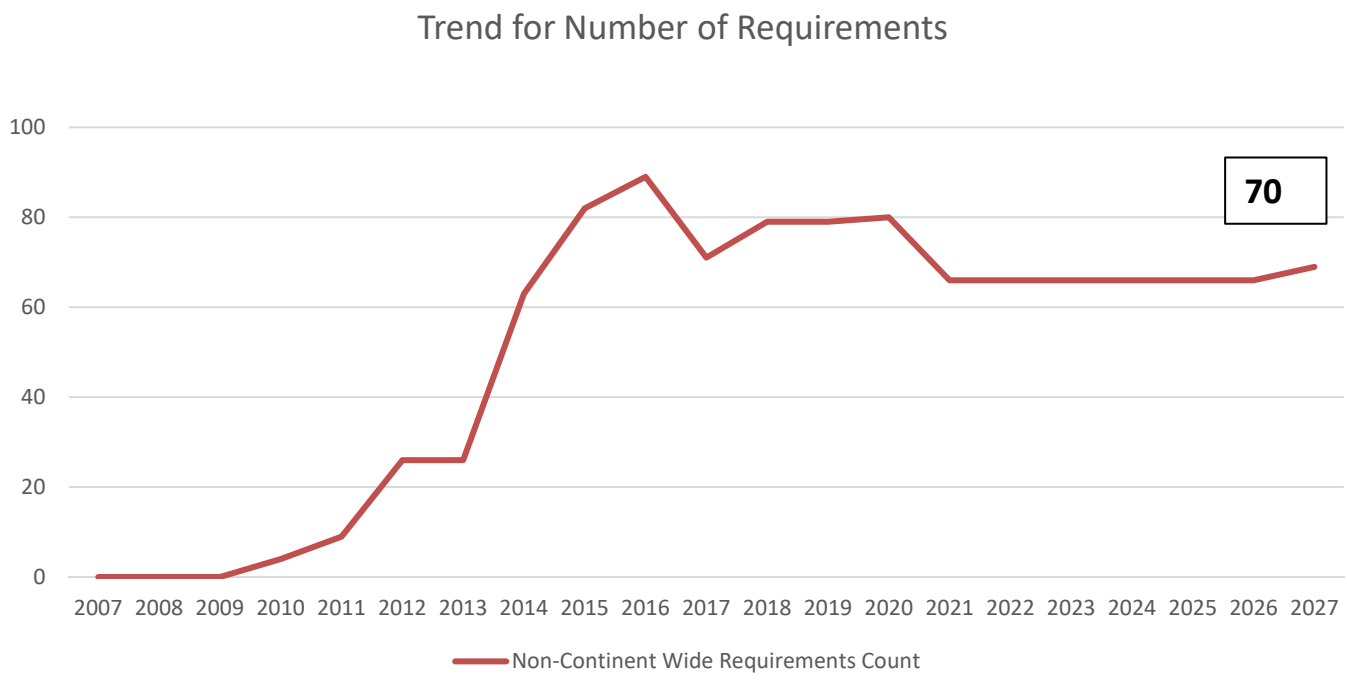


Figure 2: Trend for Number of Requirements for Regional Reliability Standards



Chapter 2: Regulatory Update

NERC FILINGS
April 1, 2022 – June 30, 2022

FERC Docket No.	Filing Description	FERC Submittal Date
AD22-5-000	ERO Enterprise Joint comments on Dynamic Line Ratings Notice of Inquiry NERC and the Regional Entities submitted joint comments on the Commission's Notice of Inquiry regarding the Implementation of Dynamic Line Ratings.	4/25/2022
RR21-8-000	Reply Comments to Public Citizen NERC submitted reply comments to comments by Public Citizen, Inc. in response to NERC's petition for approval of modifications to NERC's Rules of Procedure regarding Reliability Standards.	4/26/2022
RM22-18-000	Petition for Approval of FAC-001-4 and FAC-002-4 NERC submitted to FERC a petition for approval of proposed Reliability Standards FAC-001-4 and FAC-002-4.	6/14/2022
RD20-2-000	CIP SDT Schedule June Update Informational Filing NERC submitted an informational filing as directed by FERC in its February 20, 2020 Order. This filing contains a status update on one standard development project relating to the CIP Reliability Standards.	6/15/2022

FERC ISSUANCES
April 1, 2022 – June 30, 2022

FERC Docket No.	Issuance Description	FERC Issuance Date
RD22-3-000	Order Approving Modifications to CIP-014 FERC issued an order approving modifications to the compliance section of Reliability Standard CIP-014.	6/16/2022
RM22-10-000	NOPR on Transmission System Planning Performance Requirements for Extreme Weather FERC issued a Notice of Proposed Rulemaking ("NOPR") on Transmission System Planning Performance Requirements for Extreme Weather. The NOPR proposes to direct NERC to revise Reliability Standard TPL-001-5.1 (Transmission System Planning Performance Requirements) to address reliability concerns pertaining to transmission system planning for extreme heat and cold weather events.	6/16/2022

Chapter 3: Standards Committee Report

Summary

This report highlights some of the key activities of the Standards Committee (SC) during the second quarter of 2022.

In April, through Action without a Meeting, the SC:

- Determined that the extension for the Project 2020-05 Implementation Plan for certain defined circumstances constitutes a non-substantive change and the standards and implementation plan can be posted for 10-day final ballot.

At its April meeting, the SC:

- Accepted the Project 2020-02 Transmission-connected Dynamic Reactive Resources Standard Authorization Request (SAR); authorized drafting revisions to the Reliability Standards identified in the SAR; and appointed the Project 2020-02 SAR Drafting Team (DT) as the Project 2020-02 Standard Drafting Team (SDT).
- Appointed chair, vice chair, and members to the Project 2021-08 Modifications to FAC-008 SAR DT, as recommended by NERC staff.
- Appointed chair, vice chair and members to the Project 2022-01 Reporting ACE Definition and Associate Terms SAR DT, as recommended by NERC staff.
- Accepted the revised Project 2021-06 Modifications to IRO-010 and TOP-003 SAR; authorized drafting revisions to the Reliability Standards identified in the SAR; and appointed the SAR DT as the SDT.
- Appointed chair, vice chair, and members to the Project 2022-02 Modifications to TPL-001-5.1 and MOD-032-1 SAR DT, as recommended by NERC staff.

At its May meeting, the SC:

- Approved the following waiver of provisions of the Standard Processes Manual (SPM) for Project 2021-07 Extreme Cold Weather:
  - Initial formal comment and ballot period reduced from 45 days to as little as 30 days, with ballot(s) conducted during the last 10 days of the comment period. Form ballot pool in first 15 days. (Sections 4.7-4.9)
  - Additional formal comment and ballot period (s) reduced from 45 days to as little as 25 days, with ballot conducted during the last 10 days of the comment period. (Sections 4.9 and 4.12)
  - Final ballot reduced from 10 days to 5 calendar days. (Section 4.9)
- Authorized initial posting of proposed Reliability Standards EOP-011-3 and EOP-012-1 and the associated Implementation Plan for a 30-day formal comment period, with ballot pool formed in the first 15 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.
- Authorized initial posting of proposed Reliability Standard PRC-002-4 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.
- Authorized initial posting of proposed Reliability Standard MOD-026-2 and the associated Implementation Plan for a 45-day formal comment period, with ballot pool formed in the first 30 days, and parallel initial ballot and non-binding poll for the Violation Risk Factors and Violation Severity Levels, conducted during the last 10 days of the comment period.

- Accepted the Generator Ride-Through Standard (PRC-024-3 Replacement) SAR drafted by NERC staff; authorized posting of the SAR for a 45-day formal comment period; assigned this SAR to the Project 2020-02 Transmission-connected Dynamic Reactive Resources SDT; and authorized solicitation of the supplemental SDT members with needed expertise.
- Approved, upon recommendation of the Standards Committee Process Subcommittee (SCPS), the following revised Standards Resource Documents:
    - Guidance Document for Management of Remanded Interpretations
    - Acceptance Criteria of a Reliability Standard

At its June meeting, the SC

- Accepted the revised Project 2022-01 Reporting Area Control Error (ACE) Definition and Associated Term SAR; authorized drafting revisions to the Reliability Standards identified in the SAR; and appointed the Project 2022-01 Reporting ACE Definition and Associated Term SAR DT as the Project 2022-01 Reporting ACE Definition and Associated Term SDT.
- Accepted the revised Project 2021-02 Modifications to VAR-002-4.1 SAR; authorized drafting revisions to the Reliability Standard identified in the SAR; appointed the Project 2021-02 Modifications to VAR-002-4.1 SAR DT as the Project 2021-02 SDT; and authorized a 30-day solicitation for nominations period for the Project 2021-02 Modifications to VAR-002-4.1 SDT to add additional members of the SDT with specific industry expertise as Transmission Operators who receive and apply information to their respective Real-time assessment and Real-Time monitoring activities.
- Accepted the two SARs that were submitted by the Energy Reliability Assessment Task Force (ERATF) proposing to address Energy Assurance with Energy-Constrained Resources; authorized posting of the two SARs for a 30-day informal comment period; and authorized for solicitation of SAR DT members.

Compliance and Certification Committee (CCC) Report

Action

Information

Highlights from the Second Quarter 2022 Meeting

The CCC convened its second quarter meeting in Juno Beach, Florida on April 26-28, marking a return to in-person meetings for the first time since the COVID-19 pandemic began in early 2020. Approximately 25 people attended in person, with the remaining Committee members and observers actively engaged via WebEx. The Committee would like to thank NextEra for making their facilities available for the meeting and helping the Committee manage the logistics of an in-person meeting that offered hybrid opportunities for full participation. With the success of the hybrid approach and the continuing challenges of the pandemic, we anticipate using the in-person/hybrid meeting approach in future meetings.

The following are the key highlights of the discussion:

- The Committee approved the 2021 Stakeholder Perceptions Report. The Report outlines feedback from industry regarding 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. This review is consistent with the CCC Charter, the Committee is responsible for providing comments and recommendations to the NERC Board and NERC management in these areas.
- This quarter's Focused Discussion centered on Compliance Guidance Policy last approved by the NERC Board of Trustees in 2015. The Committee talked about the use and development of Implementation Guidance and Practice Guides, focusing on the extent to which there are opportunities to enhance the future value of these compliance tools. CCC observations will be incorporated into the 2022 Stakeholder Perceptions Report, but will be the subject of additional discussion well before that report is published early next year.
- The Committee facilitated an important discussion regarding the application of internal controls for compliance monitoring. NERC staff began the conversation with an informative presentation addressing how it uses internal controls for risk-based compliance monitoring, including how the controls help identifying monitoring approach and execution of monitoring engagements. Following a robust discussion, it was clear that the CCC and NERC will continue discussions around the topic and look for ways to expand outreach to industry and clarifying expectations about the use of internal controls.
- Two CCC procedures were approved by the Committee, each of which will come before the Board for final approval later this year:

    - CCCPP-006 — NERC CCC Mediation Procedures
    - CCCPP-010 — Criteria for Annual Regional Entity Program Evaluation
- The Committee also received its regular quarterly updates from each of the subcommittees operating on behalf of the full committee, in execution of the Committee mandate and ongoing activities. Through the CCC Executive Committee, the CCC continues to support ERO Program Alignment topics, including review of Implementation Guidance, CMEP Practice Guides, and participation in the Align Users Group.

The next meeting of the CCC was held on July 19-21 at Xcel Energy's office in Denver. The Committee was pleased to hold part of this meeting with the Standards Committee, as both have committed to holding joint sessions once a year. We look forward to reporting on outcomes related to these discussions at the upcoming Q3 2022 Board meeting.

Reliability and Security Technical Committee Report

Action
Information

RSTC Highlights
The RSTC held meetings on June 8-9, 2022 via WebEx. The following are highlights from the meeting:

- Endorsed two SARs submitted by the Energy Reliability Assessments Task Force (ERATF) to address assessing risks associated with unassured energy supplies, including the timing and inconsistent output from variable renewable energy resources, fuel location, and volatility in forecasted load, which can result in insufficient amounts of energy on the system to serve electrical demand.
- Endorsed a SAR submitted by the Inverter-Based Resource Performance Subcommittee (IRPS) to address concerns about the lack of accurate modeling data and the need to perform electromagnetic transient (EMT) studies during the interconnection process and long-term planning horizon.
- Approved two Reference Documents updated by the Real Time Operating Subcommittee (RTOS)
  - Reliability Coordinator Reliability Plan Reference Document
  - GMD Monitoring Reference Document
- Accepted the GADS Section 1600 Data Request to post for a 45-day public comment period
- Approved two White Papers submitted by the System Planning Impacts From Distributed Energy Resources Working Group (SPIDERWG)
  - BPS Reliability Perspectives for Distributed Energy Resource Aggregators
  - Recommendations for Simulation Improvement and Techniques Related to DER Planning
- The RSTC approved the Event Analysis Subcommittee (EAS) membership of Jake Bernhagen (MRO) as the MRO Regional Representative and Freddy Garcia (ERCOT) as the TRE Entity Representative to fill vacancies on the EAS.
- Approved the *FERC RM22-3: Internal Network Security Monitoring - NERC Security Working Group Whitepaper*
- Approved the System Protection and Control Working Group (SPCWG) recommendation to add Generating Availability Data Source (GADS) Cause Code Amplification Code for outages related to frequency deviation identified in the *FERC-NERC-Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States*. The codes will be implementation by the Performance analysis Subcommittee (PAS).

- RSTC reviewers were solicited to review the following documents:
  - White Paper: DER Impacts to Under Voltage Load Shedding Program Design (SPIDERWG)
  - Technical Report: Beyond Positive Sequence RMS Simulations for High DER Penetration Conditions (SPIDERWG)
  - Inter-Area Short Circuit Paper (SPCWG)
- The RSTC has conducted two electronic ballots between regular RSTC meetings in 2022:
  - May 11, 2022: The RSTC voted to Endorse the 2022 Summer Reliability Assessment with the following totals:
    - Quorum = 87.5% (28 of 32 members)
    - Endorsement = 100%
  - June 27, 2022: The RSTC voted to endorse the 2022 State of Reliability Report with the following totals:
    - Quorum = 87.5% (28 of 32 members)
    - Endorsement = 100%

Future Actions

- September 13-14, 2022 (In-person)
  - Approval of *Design Basis Criteria for a Natural Gas Study* (EGWG)
  - Endorsement of the *Frequency Response Annual Analysis* (NERC/RS)
- December 6-7, 2022 (Virtual)

Reliability Issues Steering Committee Report

Action

Information

RISC Committee Highlights

- The Committee met on June 15, 2022 and received an update on the 2022 Summer Reliability Assessment and 2022 State of Reliability Report results from NERC management. In addition, the Committee received updates on the ERO Enterprise Reliability Indicators and Risk prioritization and Committee members were asked to participate in two volunteer groups 1) to consider further enhancements to the Reliability Indicators and 2) to work with the OLT in adopting the risk prioritization framework across the ERO Enterprise, as well as for consideration in the production of the 2023 ERO Risk Priorities Report. The Committee received an update on the May 2022 Board of Trustees Policy Input and recommended actions by the RISC in response to the input. Finally, in preparation for the 2023 RISC Reliability Leadership Summit, Committee members were asked to submit potential topics, moderators, and speakers and a draft framework for the Summit Agenda would be reviewed at the July 28 meeting.
- The Committee met on July 28, 2022 and engaged in preliminary discussions on the potential panel topics for the 2023 RISC Reliability Leadership Summit, as well as the 2022 Emerging Risks Survey.
- The Committee's next meeting will be on September 1, 2022 at 2:00 p.m. Eastern and will focus on an update from the Risk Prioritization subgroups, an update on the Summit agenda/moderators/speakers, and a review and approval for distribution of the 2022 Emerging Risks Survey.

North American Transmission FORUM

Community *Confidentiality* *Candor* *Commitment*

To: NERC Board of Trustees (BOT)

From: Thomas J. Galloway, NATF President and CEO

Date: July 18, 2022

Subject: NATF Periodic Report to the NERC BOT (August 2022)

Attachments: NATF External Newsletter (July 2022)

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

NATF-ERO Leadership Meetings

To promote effective coordination, NATF and ERO leadership meet periodically to discuss topics and activities. The most recent call, on July 12, included discussions on supply chain, facility ratings, security, reliability assessments, and the May 17, 2023 NATF/ERO/EPRI resilience summit.

Supply Chain Risk Management

As noted in the attached newsletter, the NATF recently posted revised supply chain security criteria and risk questionnaire documents and an associated revision process. Part of that work included a provision to avoid the need to resubmit the related two Implementation Guidance documents to the ERO Enterprise for re-endorsement after each revision cycle; the ERO can review the proposed changes and notify the NATF if any of the proposed revisions would cause the ERO to revoke its endorsement. We appreciate the coordination with NERC staff on the provision to create this efficiency.

Efficiently Addressing Emerging and Complex Industry Topics

The NATF maintains an agile posture to help members navigate new and challenging topics and risks while working to avoid duplication with other organizations. FERC Order 881, facility ratings, and grid transformation are examples where we are employing this approach (see more in the attached newsletter).

Open Distribution

North American Transmission Forum External Newsletter

July 2022

NATF Posts Updated Supply Chain Criteria and Risk Questionnaire

The "NATF Supply Chain Security Criteria" and "Energy Sector Supply Chain Risk Questionnaire" version 3.0 documents and associated revision process have been posted for industry use on the Supply Chain Cyber Security Industry Coordination page of the NATF public website. A new "Version History" link has been added, which includes all prior versions and redlines of the NATF criteria and risk questionnaire.

The updates have been reviewed and accepted by the ERO Enterprise to ensure its continued endorsement of the two NATF CIP-013 Implementation Guidance documents: "NATF CIP-013 Implementation Guidance: Independence Assessments of Vendors" and "NATF CIP-013 Implementation Guidance: Supply Chain Risk Management Plans." This provision has been added to the revision process so the NATF does not need to resubmit the NATF Implementation Guidance documents to the ERO Enterprise for re-endorsement after each revision cycle. Specifically, the ERO can review the proposed changes and notify the NATF if any of the proposed revisions would cause the ERO to revoke its endorsement.

In addition to the updates to the revision process itself, revisions for the 2022 cycle include three new criteria, two new questions, and the removal of four questions that were determined to be duplicative. Other minor changes include additional notes and terminology updates to provide clarity.

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FERC Order 881 (Ambient-Adjusted Ratings)

FERC Order 881 ("Managing Transmission Line Ratings"), issued late last year, requires that hourly ratings for most transmission lines be calculated using forecast temperature by July 11, 2025. This will have a significant impact on NATF members and other industry utilities.

In response, the NATF has initiated webinars and a formed a multidisciplinary group to discuss challenges and identify potential work on best practices. The NATF's FERC Order 881 Working Group has begun work to define the problems that need to be solved, assess ongoing efforts in the industry, and, where appropriate, identify projects to allow members to share information and develop solutions. The working group scoped a set of questions to address and endorsed a plan to establish new project teams to work on solutions. Each team will meet at least monthly from now until early 2023.

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Return to In-Person Activities

We are pleased to report a return to face-to-face NATF events. Our recent "hybrid" quarterly members meeting included an in-person opportunity that was welcomed by our member participants. In many ways, it seemed like we picked up right where we left off.

We also have multiple in-person workshops scheduled later this summer, most of which quickly reached maximum registration capacity, and look forward to continuing a measured return. As always, we will remain cognizant of conditions and recommendations, prioritizing health and safety, and be ready to adapt as needed.

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Grid Transformation

Significant, rapid deployment of renewable resources—the bulk of which will be non-synchronous, inverter-based devices—presents a significant issue to be managed by the electricity industry. Accordingly, the NATF has developed a framework that allows us to create problem statements related to grid transformation, to identify whether each problem statement should be within NATF scope or would best be left to others, and to create scope statements for projects to address the problem statements.

The framework, divided into a set of domains, will allow us to take a big-picture approach and guide our response in relation to our existing efforts and programs. The approach will ensure proper focus and appropriate collaboration among NATF groups. In addition, we know other organizations are better suited to certain activities, and the framework allows us to track the activities of others and avoid duplication.

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