

## Agenda

### Board of Trustees

May 9, 2024 | 9:00 – 10:30 a.m. Eastern  
Hybrid Meeting

#### **In-Person** (*Board, MRC, NERC Staff ONLY*)

NERC DC Office  
1401 H Street NW, Suite 410  
Washington, D.C. 20005

#### **Virtual Attendees** (*including presenters*)

Webinar Link: [Join Meeting](#)

Attendee Password: Day2May92024 (32926299 from phones)

Audio Only: 1-415-655-0002 US | 1-416-915-8942 Canada | Access Code: 2304 356 4396

#### **NERC Board of Trustees**

Kenneth W. DeFontes, Jr. - Chair  
Suzanne Keenan – Vice Chair and Chair Elect  
Colleen Sidford  
Larry Irving  
George S. Hawkins  
Robin E. Manning  
Jim Piro  
Jane Allen  
Robert G. Clarke  
Susan Kelly  
Kristine Schmidt  
James B. Robb – President and Chief Executive Officer

#### **Call to Order**

#### **Introductions and Chair's Remarks**

#### **[NERC Antitrust Compliance Guidelines](#)**

#### **Consent Agenda**

1. **Minutes – Approve**
  - a. February 22, 2024 Open Meeting\*
  - b. February 15, 2024 Open Meeting\*
2. **Committee Membership and Charter Amendments**

- a. Reliability Issues Steering Committee (RISC) Membership\* – **Approve**
- b. Reliability and Security Technical Committee (RSTC) Membership\* – **Approve**

## **Regular Agenda**

### **3. Remarks and Reports**

- a. Remarks by Mark Christie, Commissioner, FERC
- b. Remarks by Allison Clements, Commissioner, FERC
- c. Remarks by Patricia Hoffman, Principal Deputy Assistant Secretary for the Office of Electricity, DOE
- d. Remarks by Derek Olmstead, President and CEO Alberta MSA, CAMPUT Representative
- e. President’s Report
- f. Report on May 7 and 9, 2024 Closed Meetings

### **4. Board Committee Reports**

- a. Corporate Governance and Human Resources
- b. Regulatory Oversight Committee
- c. Finance and Audit
  - i. 2023 Audited Financial Statements – **Approve**
  - ii. First Quarter Unaudited Statement of Activities – **Approve**
- d. Enterprise-wide Risk
- e. Technology and Security
- f. Nominating

## **Break – 15 mins**

### **5. Standards Quarterly Report and Actions**

- a. Project 2016 – 02 Modifications to CIP Standards\* – **Adopt**
- b. Regional Reliability Standards FAC-501-WECC-4 Transmission Maintenance\* – **Adopt**
- c. Project 2023-03 [Internal Network Security Monitoring \(INSM\)](#)\* – **Adopt**

### **6. Other Matters and Reports**

- a. Input Letter and Member Representatives Committee Meeting

### **7. Other Matters and Adjournment**

\*Background materials included.

## DRAFT Minutes Board of Trustees

February 22, 2024 4:30 – 5:00 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 February 22, 2024, at 4:30 p.m. Eastern, and a quorum was declared present. The agenda is attached as **Exhibit A**.

Present at the meeting were:

#### Board Members

Kenneth W. DeFontes, Jr., Chair  
Suzanne Keenan, Vice Chair and Chair Elect  
Jane Allen  
Robert G. Clarke  
George S. Hawkins  
Larry Irving  
Susan Kelly  
Robin E. Manning  
Jim Piro  
James B. Robb, NERC President and Chief Executive Officer  
Kristine Schmidt  
Colleen Sidford

#### NERC Staff

Tina Buzzard, Assistant Corporate Secretary  
Manny Cancel, Senior Vice President and Chief Executive Officer of the E-ISAC  
Candice Castaneda, Senior Counsel  
Howard Gugel, Vice President, Compliance Assurance and Registration  
Kelly Hanson, Senior Vice President and Chief Administrative Officer  
Soo Jin Kim, Vice President, Engineering and Standards  
Sônia Rocha, Senior Vice President, General Counsel, and Corporate Secretary  
Lauren Perotti, Assistant General Counsel

#### NERC Antitrust Compliance Guidelines

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

#### Introduction and Chair's Remarks

Mr. DeFontes welcomed the attendees to the meeting and noted the purpose of the meeting is to approve the proposed Rules of Procedure revisions regarding registration of inverter-based resources, or IBRs. He expressed the

Board's appreciation for the stakeholder feedback on the proposals and the discussion at the February 15, 2024 open meeting. He introduced Mr. Robb to provide further remarks.

Mr. Robb remarked on the broad degree of consensus for the new registration thresholds for IBRs, but he noted opportunities to improve outreach and communications regarding implementation.

### **Proposed Revisions to the NERC Rules of Procedure - Registration**

Mr. Gugel introduced the proposed revisions to the NERC Rules of Procedure for registration, noting that NERC staff considered feedback from stakeholders and several criteria to determine the optimal path forward among the possible implementation options. These criteria included: (1) minimizing impact to standards development; (2) fastest time to implement the approach; (3) minimizing burden on registered entities; and (4) minimizing burden on ERO registration staff. He noted that, after considering all of the stakeholder feedback received, NERC staff proposes revisions to the Rules of Procedure that are consistent with those reviewed at the February 15, 2024 meeting. Mr. Gugel emphasized staff's commitment to continued engagement and outreach as NERC implements these registration changes, which will begin after FERC approval.

The Board discussed the alternative approaches considered, including revising the Bulk Electric System (BES) definition. Mr. Gugel clarified that NERC staff's proposal would not foreclose revising the BES definition at a later time. The Board also discussed the need for enhanced outreach as the registration changes are implemented. Mr. DeFontes asked NERC staff to provide further updates to the Board as key milestones are advanced, and he noted that stakeholders would have the opportunity to ask questions or raise concerns in open meetings.

The Board opened the discussion to attendees, and Mr. Gugel clarified outreach efforts and aspects of NERC staff's proposal. Mr. DeFontes thanked stakeholders for the discussion and feedback received. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

**WHEREAS**, entities listed in the NERC Compliance Registry (NCR) are responsible for compliance with applicable mandatory Reliability Standards and subject to compliance monitoring and enforcement;

**WHEREAS**, NERC does not monitor or hold those outside of the NCR responsible for compliance with Reliability Standards;

**WHEREAS**, Appendix 5B of the NERC Rules of Procedure (ROP), as supported by Appendices 2 and 5A of the ROP, sets forth the Statement of Compliance Registry Criteria which describes how NERC will identify organizations that may be candidates for Registration and assign them to the Compliance Registry;

**WHEREAS**, on November 17, 2022, the Federal Energy Regulatory Commission (FERC) directed NERC to submit a work plan describing how it plans to identify and register owners and operators of inverter-based resources (IBR) that are connected to and have a material impact in the aggregate on the Bulk-Power System (BPS), but are not currently required to register with NERC under the bulk electric system (BES) definition;<sup>1</sup>

**WHEREAS**, NERC submitted its work plan on February 15, 2023, as amended on March 23, 2023, outlining concepts and milestones to achieve FERC's directive, and FERC accepted the work plan on May 18, 2023;

**WHEREAS**, NERC management proposes a series of revisions to the NERC Rules of Procedure to register owners and operators of IBR resources that are connected to and have a material impact in the aggregate on

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<sup>1</sup> *Registration of Inverter-Based Resources*, 181 FERC ¶ 61,124 (2022); and *Order Approving Registration Work Plan*, 183 FERC ¶ 61,116 (2023).

the BPS, but are not currently required to register with NERC under the BES definition, to accomplish the first milestone of its work plan;

**WHEREAS**, NERC management solicited stakeholder feedback on the proposed Rules of Procedure revisions through the public notice and comment process described in Section XI of the NERC Bylaws;

**WHEREAS**, further work to accomplish the second and third milestones of NERC’s work plan, including the development of new or revised Reliability Standards, will proceed in accordance with NERC’s usual processes for such work;;

**NOW, THEREFORE, BE IT RESOLVED**, that the Board hereby approves the proposed revisions to Appendix 2 (Definitions), Appendix 5A (Organization Registration and Certification Manual), and Appendix 5B (Compliance Registry Criteria);

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

### **Other Matters and Adjournment**

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

Submitted by,



Sônia Rocha  
Corporate Secretary

## Draft Minutes Board of Trustees

February 15, 2024 | 8:30 – 11:30 a.m. Central

The Houstonian Hotel Houston  
111 North Post Oak Lane  
Houston, TX 77024

### 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 February 15, 2024, at 8:30 a.m. Central, and a quorum was declared present.

Present at the meeting were:

### Board Members

Kenneth W. DeFontes, Jr., Chair  
George S. Hawkins, Vice Chair  
Jane Allen  
Robert G. Clarke  
Larry Irving  
Suzanne Keenan  
Susan Kelly  
Robin E. Manning  
Jim Piro  
James B. Robb, President and Chief Executive Officer  
Kristine Schmidt  
Colleen Sidford

### NERC Staff

Tina Buzzard, Assistant Corporate Secretary  
Manny Cancel, Senior Vice President and Chief Executive Officer of the E-ISAC  
Candice Castaneda, Senior Counsel  
Howard Gugel, Vice President, Compliance Assurance and Registration  
Kelly Hanson, Senior Vice President and Chief Administrative Officer  
Soo Jin Kim, Vice President, Engineering and Standards  
Mark G. Lauby, Senior Vice President and Chief Engineer  
Lauren Perotti, Assistant General Counsel  
Sônia Rocha, Senior Vice President, General Counsel, and Corporate Secretary  
Janet Sena, Senior Vice President, External Affairs  
Andy Sharp, Vice President and Chief Financial Officer

**NERC Antitrust Compliance Guidelines**

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

**Introduction and Chair’s Remarks**

Mr. DeFontes welcomed the attendees to the meeting. He reported that Janet Sena, NERC Senior Vice President of External Affairs, would soon be retiring from NERC. Upon motion duly made and seconded, the Board approved the following resolution in her honor:

**WHEREAS**, Janet Sena, Senior Vice President, External Affairs, of the North American Electric Reliability Corporation has led the company’s external affairs department since 2010;

**WHEREAS**, Ms. Sena transformed NERC’s External Affairs department to greatly enhance strategic engagement with policymakers, regulators, industry stakeholders, the media, and other external audiences;

**WHEREAS**, Ms. Sena’s leadership was integral to effectively communicating critical reliability and security issues, thereby reducing reliability risk and significantly advancing NERC’s effectiveness and stature in furtherance of its mission;

**WHEREAS**, Ms. Sena’s extensive prior experience at the highest levels of government and industry were invaluable to her provision of strategic counsel across the company; and

**WHEREAS**, Ms. Sena’s broad contributions to NERC made her a valued colleague and friend to NERC’s Board of Trustees and management;

**NOW, THEREFORE, BE IT RESOLVED**, that the Board of Trustees of the North American Electric Reliability Corporation does hereby convey its deepest gratitude to Janet Sena for her years of commitment and exemplary service, and honors her on the occasion of her retirement as Senior Vice President, External Affairs.

**Consent Agenda**

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

**Minutes**

The draft minutes for the December 12, 2023 meeting were approved as presented to the Board at this meeting.

**Committee Membership**

**Reliability and Security Technical Committee Membership and Charter Amendments**

**RESOLVED**, that the Board hereby appoints the following individuals to the Reliability and Security Technical Committee (“RSTC”) as follows:

Sector Elected Members	
1. Investor-owned utility	Vinit Gupta (ITC) 2024-2026
2. State/municipal utility	David Grubbs (Garland) 2024-2026
3. Cooperative utility	Nathan Brown (GSOC) 2024-2026
4. Federal or provincial utility/Federal Power Marketing Administration	Robert Reinmuller (Hydro One) – 2024-2026

5. Transmission dependent utility	John Lemire, NCEMC – 2024-2026
6. Merchant electricity generator	Brett Kruse (Calpine) 2024-2026
7. Electricity Marketer	Jodirah Green (ACES Power) – 2024-2026
8. Large end-use electricity customer	Seat converted to At-large – 2024-2026
9. Small end-use electricity customer	Seat Converted to At-large – 2024-2026
10. Independent system operator/ regional transmission organization	Ahmed Maria (IESO) – 2024-2026
12. State Government	Seat converted to At-large – 2024-2026
<b>At-large Members</b>	
Venona Greaff	Oxy – 2024-2026 (converted Sector 8)
Wayne Guttormson	SaskPower – 2024-2026 (converted Sector 9)
Dede Subakti	California ISO – 2024-2026 (converted Sector 12)
David Mulcahy	Illuminate Power Analytics, LLC – 2024-2026
Stephen George	ISO New England– 2024-2026
Monica Jain	SCE – 2024-2026
Truong Le	ERCOT - 2024-2026
Ryan Quint	Elevate Energy Consulting – 2024-2026

<b>Non-voting Members</b>	
United States Federal Government (2)	David Ortiz, FERC – 2024-2026
Provincial Government (1)	Catherine Ethier, Ontario Energy Board – 2024-2026

**BE IT FURTHER RESOLVED**, that the Board, upon recommendation of the CGHRC, hereby approves the revised Reliability and Security Technical Committee (“RSTC”) Charter, substantially in the form presented to the Board at the meeting, to replace the charter approved by the Board on November 4, 2021.

**Reliability Issues Steering Committee Membership**

**RESOLVED**, that the Board hereby appoints the following individuals to the Reliability Issues Steering Committee (“RISC”) as follows:

Member Type/Term	Name/Organization
Proposed Chair Term expiring January 31, 2026	Teresa Mogensen ATC
At-Large Member Term expiring January 31, 2025	Bill Zuretti EPSA
At-Large Member Term expiring January 31, 2026	Woody Rickerson ERCOT
At-Large Member Term expiring January 31, 2026	Jennifer Sterling Exelon
At-Large Member Term expiring January 31, 2026	Sean Gallagher SEIA
At-Large Member Term expiring January 31, 2026	Dennis McDermitt National Grid



At-Large Member Term expiring January 31, 2026	Jim Jones Great River Energy
At-Large Member Term expiring January 31, 2026	Walter Alvarado Consolidated Edison
At-Large Member Term expiring January 31, 2026	Mark Ahlstrom Nextera Analytics
At-Large Member Term expiring January 31, 2026	David Heitzer BP Energy Retail
At-Large Member Term expiring January 31, 2025	Brian Slocum, Past Chair ITC Holdings
At-Large Member Term expiring January 31, 2026	Morenike Miles Dominion
MRC Member Term expiring January 31, 2026	Jennifer Flandermeyer Nextera
MRC Member Term expiring January 31, 2026	Matthew Fischesser ACES
MRC Member Term expiring January 31, 2026	Darryl Maxwell Manitoba Hydro
MRC Member Term expiring January 31, 2026	Edison Elizeh BPA
Compliance & Certification Committee Term expiring January 31, 2025	Silvia Parada-Mitchell NextEra Energy
Reliability and Security Technical Committee Term expiring January 31, 2025	John Stephens City Utilities of Springfield
Standards Committee Term expiring January 31, 2025	Todd Bennett Associated Electric Cooperative, Inc

### Standards Committee Charter Amendments

**RESOLVED**, that the Board, upon recommendation of the Corporate Governance and Human Resources Committee, hereby approves the revised Standards Committee Charter, substantially in the form presented to the Board at the meeting, to replace the charter approved by the Board on February 10, 2022.

### Compliance and Certification Committee Membership

**RESOLVED**, that the Board hereby appoints individuals to the Compliance and Certification Committee as follows:

Member Type/Term	Name/Organization
Sector 2 Term expiring December 31, 2024	Mike Bowman City Utilities of Springfield, MO
Sector 6 Term expiring December 31, 2024	Hernando Zorillo Acciona Energia

At-Large Term expiring December 31, 2026	Ruchi Shah AES Clean Energy
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**Governance Documents Amendments**

**System Operator Certification Program Manual and System Operator Certification Program Manual Mapping Document**

**RESOLVED**, that the Board hereby approves the revised System Operator Certification Manual, substantially in the form presented to the Board at this meeting, to replace the System Operator Certification Manual approved by the Board on February 10, 2022.

**CCCPP-012, Monitoring CCC Participation in NERC’s Audits of CMEP Programs**

**RESOLVED**, that the Board hereby approves the revised CCC procedure document CCCPP-012-3, CCC Participation in NERC’s Audits of CMEP Programs, substantially in the form presented to the Board at this meeting.

**Regular Agenda**

**Remarks by Thad Hill, President and CEO, Calpine Corporation**

Mr. Robb introduced Mr. Hill, President and CEO, Calpine Corporation. Mr. Hill remarked on the challenges with winterization in Texas and reported that the main challenges experienced during the February 2021 winter storm Uri have since been addressed. He noted that NERC’s response to the reliability issues experienced during this event was holistic and realistic. Mr. Hill also remarked on experiences with deploying battery storage resources in Texas and carbon capture.

**Remarks by Pat Wood III, CEO, Hunt Energy**

Mr. Robb introduced Mr. Wood, CEO, Hunt Energy. Mr. Wood noted the challenges of ensuring reliable operations during winter in Texas and the importance of efforts to ensure reliability going forward. He reported on Texas state legislative developments, NERC efforts, and activities by the North American Energy Standards Board (NAESB) to address the factors contributing to past winter storm reliability events. Mr. Wood remarked on the composition of the resource mix in Texas and the role the markets play. He also remarked on other trends, including digitalization, democratization, and decentralization. Mr. Wood remarked on the need to think strategically about grid reliability issues.

**Remarks by Patricia Hoffman, Principal Deputy Assistant Secretary, Office of Electricity, DOE**

Mr. DeFontes introduced Ms. Hoffman of the Department of Energy. Ms. Hoffman congratulated Ms. Sena on her retirement and remarked on the 25<sup>th</sup> anniversary of the E-ISAC. In her remarks on DOE activities, Ms. Hoffman highlighted the DOE’s program for investing in transmission, engagement with the states on resiliency matters, and efforts to leverage the work of the DOE national laboratories in scenario modeling to drive transmission investments. Ms. Hoffman also discussed DOE efforts to drive the deployment of new technologies to improve the system.

**Remarks by Derek Olmstead, President and CEO Alberta MSA, CAMPUT Representative**

Mr. DeFontes introduced Mr. Olmstead, CAMPUT Representative to NERC. Mr. Olmstead remarked on the differences among the U.S. and the Canadian provinces regarding reliability regulation. He reported on recent engagement activities among NERC and the Canadian regulators, stating that the briefings on security and reliability

issues have been very helpful. Mr. Olmstead also remarked on ways NERC has been responsive to the concerns of Canadian regulators, such as by including Canada in the forthcoming interregional transfer capability study.

### **President's Report**

Mr. Robb provided the president's report. He congratulated Chairman Willie Phillips of the Federal Energy Regulatory Commission upon his recent appointment as chair of the Commission. Mr. Robb reported that NERC will soon post a 2023 year in review video, and he encouraged NERC's stakeholders to visit the nerc.com website to view the video. Mr. Robb also remarked on the 25<sup>th</sup> anniversary of the E-ISAC and the strides that have been made to advance information sharing among entities and regulators.

Mr. Robb reported on several matters of importance to NERC. First, he reported that NERC has decided to close its Atlanta office in light of changing office needs post-pandemic, and NERC will rely on the D.C. Collaboration Hub and flexible work spaces for its collaboration needs going forward. Second, Mr. Robb reported that NERC, Regional Entity, and Commission staff will conduct a joint assessment of grid performance during the cold conditions experienced during January 2024, with results to be presented in the June timeframe. Third, Mr. Robb reported on personnel matters, including Ms. Sena's forthcoming retirement, the appointment of Matt Duncan and Bluma Sussman to vice president roles within the E-ISAC, and the appointment of Fritz Hirst as the vice president, governmental affairs.

Mr. Robb then introduced Mr. Jim Albright, President and CEO of Texas RE and co-chair of the ERO Executive Group. Mr. Albright remarked on the different resource mixes among the regions and the need for ongoing engagement with state policymakers. He remarked on efforts by the Regional Entities to ensure the seamless integration of the new inverter-based resource generating entities that will be brought into the NERC compliance registry under planned changes to the NERC Rules of Procedure. Mr. Albright also noted the Regional Entities' continued focus on cold weather reliability.

### **Report on the February 13 and February 15, 2024 Closed Meetings**

Mr. DeFontes reported that on February 13, 2024 and February 15, 2024 (as is its custom), the Board met in closed session with NERC management to review NERC management activities. On February 13, the Board discussed the 2024 ERO communications plan and strategy and Board governance matters. On February 15, the Board discussed matters for this meeting. The Board adjourned into executive sessions with the General Counsel and the CEO, and with the General Counsel separately, to discuss confidential matters. The Board also adjourned into executive session to discuss confidential matters.

### **Election and Appointment of Board Chair and Vice Chair, Board of Trustees Committee Assignments and NERC Officers**

Mr. DeFontes presented the recommendations for Board officers and committee assignments, noting that Ms. Keenan will serve as Vice Chair in 2024 and succeed him as Chair in 2025. Mr. Robb presented the proposed slate of NERC officers. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

**RESOLVED**, that the Board hereby elects the following officers of the Corporation for 2024:

- Kenneth W. DeFontes, Jr., Chair
- Suzanne Keenan, Vice Chair & Chair Elect
- James B. Robb, President and Chief Executive Officer

**FURTHER RESOLVED**, that the Board, upon recommendation of the President, hereby appoints the following individuals as officers of the Corporation for 2024:

- Manny Cancel, Senior Vice President and Chief Executive Officer of the E-ISAC
- Kelly Hanson, Senior Vice President and Chief Administrative Officer
- Mark G. Lauby, Senior Vice President and Chief Engineer
- Sonia Rocha, Senior Vice President, General Counsel, and Corporate Secretary
- Andy Sharp, Vice President and Chief Financial Officer

**FURTHER RESOLVED**, that the Board, upon recommendation of the Chair in consultation with the CGHRC, hereby approves the following 2024 Board Committee Assignments, as presented to the Board at this meeting.

**Chair:** Kenneth W. DeFontes, Jr.

**Vice Chair & Chair Elect:** Suzanne Keenan

**Immediate Past Chair:** N/A

**Corporate Governance and Human Resources**

**Chair: George Hawkins**

Robert G. Clarke  
Colleen Sidford  
Larry Irving  
Jane Allen  
Suzanne Keenan

**Regulatory and Oversight**

**Chair: Robin E. Manning**

Larry Irving  
George S. Hawkins  
Susan Kelly  
Kristine Schmidt

**Finance and Audit**

**Chair: Colleen Sidford**

Robert G. Clarke  
Kristine Schmidt  
Susan Kelly  
Jim Piro

**Enterprise-wide Risk**

**Chair: Jim Piro**

Robert G. Clarke  
Robin E. Manning  
Colleen Sidford  
Jane Allen

**Technology and Security**

**Chair: Jane Allen**

Larry Irving  
Suzanne Keenan  
Robin E. Manning  
Jim Piro  
Susan Kelly

**Nominating Committee**

**Chair: Larry Irving**

Bob Clarke  
Suzanne Keenan  
Susan Kelly  
Jim Piro  
Kristine Schmidt  
Robin E. Manning  
George S. Hawkins

**MRC Members**

Jennifer Flandermeyer, MRC Chair  
John Haarlow, MRC Vice Chair  
Additional MRC Members to be determined

**Related Assignments**

- **ESCC Observer:** Kenneth W. DeFontes, Jr.
- **MEC Observer:** Jane Allen
- **Standards Committee Observer:** Susan Kelly
- **Reliability and Security Technical Committee Observer:** Susan Kelly
- **International Liaison:** Colleen Sidford
- **Ex Officio all committees:** Kenneth W. DeFontes

## Board Committee Reports

### Corporate Governance and Human Resources

Ms. Keenan, Committee Chair, reported on recent Committee meetings. At the December 11, 2023 and February 13, 2024 closed meetings, the Committee discussed Board norms and personnel and governance matters. The Committee also reviewed NERC's employee total rewards package, including NERC's significant benefit and retirement plans. The Committee met in executive session with the CEO and the Vice President, People and Culture to discuss HR matters, and without staff to discuss other confidential matters. At the February 14, 2024 open meeting, the Committee addressed several governance matters and received an update on NERC's people and culture initiatives.

### Regulatory Oversight

Mr. Manning, Committee Chair, reported on recent Committee meetings. At the February 13, 2024 closed meeting, the Committee reviewed standards priorities and timelines, reviewed proposed changes to the Rules of Procedure regarding registration of inverter-based resources, and received updates on CMEP/Organization Registration and Certification Program (ORCP) oversight and significant CMEP matters. The Committee also discussed the proposed cold weather standard Reliability Standard EOP-012-2 on the Board's open meeting agenda, noting the need for strong oversight as this standard is implemented. The Committee adjourned into executive session to discuss confidential matters. At the February 14, 2024 open meeting, the Committee received updates on standards indicators, the CMEP implementation plan, and the CMEP and ORCP annual report.

### Finance and Audit

Ms. Sidford, Committee Chair, reported on recent meetings of the Committee. At the February 13, 2024 closed meeting, the Committee received updates on the investment policy and investment fund performance, a finance software project, assessment matters, the 2023 audits, and the 2024 audit plan and activities. The Committee then adjourned into executive session with internal audit and in executive session with members-only to discuss confidential matters.

Ms. Sidford reported that, at its February 14, 2024 open meeting, the Committee reviewed the 2025 business plan and budget schedule. The Committee also reviewed and recommended for Board acceptance the 2023 year-end unaudited summary of results. Upon motion duly made and seconded, the Board approved the following resolution:

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

### Enterprise-wide Risk

Mr. Piro, Committee Chair, reported on the Committee's closed meeting on February 6, 2024. At its meeting, the Committee received updates from corporate risk management regarding NERC's assurance structure and efforts to ensure the oversight and accuracy of the NERC Compliance Registry. The Committee also received an update from internal audit, an update from Mr. Scott Tomashefsky, Chair of the Compliance and Certification Committee (CCC), on CCC activities, and an update from Mr. Jim Albright, President and CEO of Texas RE, regarding Regional Entity activities. The Committee concluded in executive session to discuss confidential matters.

### Technology and Security

Ms. Allen, Committee Chair, reported on the February 14, 2024 open meeting of the Committee. At this meeting, the Committee received updates on the ERO Enterprise Business Technology strategic plan, ERO Enterprise stakeholder engagement, and the threat landscape. The Committee also received an update on efforts to enhance the E-ISAC customer experience and reviewed recommendations from the GridEx VII executive tabletop session.

### **Nominating**

Mr. Clarke, Committee Chair, reported that the Committee's 2023 work completed at the MRC meeting the day prior with the election of George S. Hawkins, Larry Irving, Susan Kelly, and Robin E. Manning to the Board. He noted that Ms. Sidford, Ms. Allen, and Mr. DeFontes will be eligible for reelection in 2024, while Mr. Clarke will retire from the Board. The Committee, with Mr. Irving as Chair, will conduct a search for a new trustee in 2024.

### **Report by Sue Kelly on Standards Quarterly Activities**

Ms. Kelly reported on standards activities and actions taken at recent meetings, including the election of new Standards Committee officers and the development of revisions to the Standards Committee charter to address the recommendations of the Standards Process Stakeholder Engagement Group. She noted efforts to refine the prioritization of standards projects and the need to evaluate standards processes and procedures to keep up with the load. Ms. Kelly thanked the Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination standard drafting team, NERC staff, and the Standards Committee for their work in successfully producing a consensus generator winter preparedness standard, proposed Reliability Standard EOP-012-2, by FERC's deadline.

### **Report by Rob Manning on RSTC Quarterly Activities**

Mr. Manning reported on the recent election of Rich Hydzik as new chair of the RSTC. Actions taken at recent meetings will be discussed in the RSTC quarterly report.

### **Proposed Revisions to the Rules of Procedure to Address Unregistered IBRs**

Mr. DeFontes noted that this item would be advanced in the agenda, and the Board would not be taking action at this meeting to allow for additional discussion on the proposal.

Mr. Gugel presented the proposed revisions to the NERC Rules of Procedure to address the registration of inverter-based resources ("IBRs") falling under the thresholds of NERC's current Bulk Electric System definition, as directed by FERC. He noted the strong degree of stakeholder consensus for the proposed registration thresholds, which would result in nearly 98% of impactful IBRs becoming subject to Reliability Standards. Mr. Gugel directed any questions regarding the public process used to develop the proposals to Ms. Castaneda.

Mr. Gugel then reviewed the different registration approaches considered and the benefits and drawbacks of each, along with standards-related impacts as NERC undertakes the next phases of work. He emphasized that this proposal addresses only the registration process, and further work would need to occur through NERC's standard development process to accomplish the goal of mandatory compliance with Reliability Standards. Mr. Gugel discussed plans for outreach to the new IBR entrants, including aiding existing registered entities and entities that are new to NERC in understanding their obligations.

Mr. DeFontes then led a discussion of staff's proposal among the meeting participants. Ms. Jennifer Sterling of Exelon noted that Edison Electric Institute would prefer a targeted change to the definition of Bulk Electric System over NERC's proposal, but expressed EEI's intent to work with whatever implementation path is decided. Mr. Brian Evans-Mongeon, MRC member representing the Transmission-Dependent Utility sector, noted that he does not support revising the BES definition, but would prefer new and separate registration categories for new IBR entrants with changes made to incorporate the new categories in each applicable standard.

In response to a question from Mr. Srinivas Kappagantula, MRC member representing the Merchant Generator sector, Mr. Gugel clarified that the proposed registration criteria would capture IBR resources having a material impact to the Bulk-Power System, as demonstrated by multiple NERC event reports. Mr. Kappagantula emphasized the need for improved communication with the new IBR entrants that may not be aware of NERC activity. Mr. Jason Marshall, MRC member representing the Cooperative sector, noted that the Cooperative sector does not support revising the Bulk Electric System definition.

Mr. DeFontes concluded the discussion by thanking the participants for their feedback and discussion on the proposal.

## **Semi-Annual Reports to the Board**

### **Personnel Certification Governance Committee**

Mr. Cory Danson, Committee Chair, provided an update on the activities of the Committee. Mr. Danson then presented the proposed 2024 Committee work plan for the Board's approval. Upon motion duly made and seconded, the Board approved the following resolution:

**RESOLVED**, that the Board hereby approves the Personnel Certification Governance Committee 2024 Work Plan, substantially in the form presented to the Board at this meeting.

### **Standards Committee**

Mr. Todd Bennett, Committee Chair, provided an update on the activities of the Committee. He then presented the proposed 2024-2026 Committee strategic work plan for the Board's approval. Upon motion duly made and seconded, the Board approved the following resolution:

**RESOLVED**, that the Board hereby approves the Standards Committee 2024-2026 Strategic Work Plan, substantially in the form presented to the Board at this meeting.

Mr. DeFontes concluded the discussion by thanking the immediate past chair of the Committee, Amy Casuscelli, for her service to the Committee.

### **Compliance and Certification Committee**

Mr. Scott Tomashefsky, Committee Chair, provided an update on the activities of the Committee. Mr. Tomashefsky then presented the proposed 2024 Committee work plan for the Board's approval. Upon motion duly made and seconded, the Board approved the following resolution:

**RESOLVED**, that the Board hereby approves the CCC 2024 Work Plan, substantially in the form presented to the Board at this meeting.

### **Reliability and Security Technical Committee**

Mr. Rich Hydzik, Committee Chair, highlighted the recent work of the Committee. Mr. Hydzik then presented the proposed 2024-2025 Committee strategic plan for the Board's approval. Upon motion duly made and seconded, the Board approved the following resolution:

**RESOLVED**, that the Board hereby approves the RSTC 2024-2025 Strategic Plan, substantially in the form presented to the Board at this meeting.

### **Reliability Issues Steering Committee**

*The Committee update was included in the advance agenda materials.*

### **North American Energy Standards Board**

Mr. Michael Desselle, Chair of the NAESB Board of Directors, thanked Ms. Sena for her support over the years and expressed his best wishes for her retirement. He provided an update on NAESB activities in areas of mutual interest,



including the development of NAESB standards addressing natural gas-electric coordination and the development of model contracts with the Department of Energy for distributed energy resource aggregations and hydrogen.

#### **North American Transmission Forum**

Mr. Ken Keels, NATF, Director – Initiatives provided an update on NATF activities in areas of mutual interest. He highlighted NATF work on transmission planning, inverter-based resources, security, and supply chain issues.

#### **North American Generation Forum**

Ms. Venona Greaff, NAGF Secretary, provided an update on NAGF activities, referencing the material included in the advance agenda package. She highlighted collaboration on the new IBR registration and facility ratings.

### **Standards Quarterly Report and Actions**

#### **Project 2022-01 Reporting ACE Definition and Associated Terms**

Ms. Kim presented the proposed new, revised, and retired definitions of terms for inclusion in the *Glossary of Terms used in NERC Reliability Standards* developed through Project 2022-01 Reporting ACE Definition and Associated Terms. She noted that the proposals would allow all interconnections to implement automatic time error correction procedures, reduce confusion on the components of Area Control Error used for reporting, and promote clarity and consistency among related terms. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

**RESOLVED**, that the Board hereby adopts the proposed modified definitions of terms included in the *Glossary of Terms used in NERC Reliability Standards*: Actual Net Interchange (NIA), Area Control Error (ACE), Automatic Time Error Correction (ATEC), Balancing Authority Area (BAA), Balancing Contingency Event (BCE), Control Performance Standard (CPS), Disturbance, Dynamic Interchange Schedule or Dynamic Schedule, Frequency Bias Setting (FBS), Frequency Error, Implemented Interchange, Inadvertent Interchange, Interchange Meter Error -(IME), Operating Reserve – Spinning, Operating Reserve – Supplemental, Overlap Regulation Service, Pseudo-Tie, Ramp Rate or Ramp, Regulation Service, Reportable Balancing Contingency Event (RBCE), Reporting Area Control Error (Reporting ACE), Reserve Sharing Group (RSG), Reserve Sharing Group Reporting ACE, Scheduled Frequency, Scheduled Net Interchange (NIS), Supplemental Regulation Service, Tie Line Bias (TLB), Time Error (TE), and Time Error Correction (TEC).

**RESOLVED**, that the Board hereby adopts the proposed new definitions of terms for inclusion in the *Glossary of Terms used in NERC Reliability Standards*: ACE Diversity Interchange (ADI) and Inadvertent Interchange Management (IIM).

**RESOLVED**, that the Board hereby approves the retirement of the following definitions of terms used in the *Glossary of Terms used in NERC Reliability Standards*: Disturbance Control Standard, Net Interchange Schedule, Net Scheduled Interchange, and Reportable Disturbance.

**FURTHER RESOLVED**, that the Board hereby approves the associated implementation plan for the above-listed modified, new, and retired definitions of terms used in the *Glossary of Terms used in NERC Reliability Standards*, as presented to the Board at this meeting.

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

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

Ms. Kim presented proposed Reliability Standard EOP-012-2 – Extreme Cold Weather Preparedness and Operations. She explained that the proposed standard addresses directives from the Federal Energy Regulatory Commission (“FERC”) in its February 2023 order approving Reliability Standards EOP-012-1 and EOP-011-3 as well as the remaining key recommendations from the FERC, NERC, and Regional Entity joint inquiry examining grid operations during the February 2021 cold weather event affecting Texas and the south central United States. Ms. Kim reported that NERC plans to monitor implementation of the EOP-012 standard carefully to ensure it is providing the intended benefits for reliability. Ms. Kelly underscored NERC’s intent to monitor closely the implementation of the standard. After discussion, and upon motion duly made and seconded, the Board approved the following resolutions:

**RESOLVED**, that the Board hereby adopts the proposed Reliability Standard EOP-012-2, as presented to the Board at this meeting.

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

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

**FURTHER RESOLVED**, that the Board hereby approves the proposed retirement of Reliability Standard EOP-012-1, as presented to the Board at this meeting.

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

### **Other Matters and Reports**

#### **Input Letter and Member Representatives Committee Meeting**

There was no further discussion from the Member Representatives Committee meeting.

#### **Year-End Review of the Achievements of the 2023 NERC Work Plan Priorities**

Ms. Hanson provided a year-end review of the achievements of the 2023 NERC work plan priorities. She highlighted accomplishments in the 2023-2025 strategic areas of focus: energy, security, agility, and sustainability. Ms. Hanson also noted unanticipated work for 2023, including multiple FERC directives and the Congressional mandate to complete an interregional transfer capability study by December 2024.

#### **Other Matters and Adjournment**

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

Submitted by,



Sônia Rocha  
Corporate Secretary

## **Reliability Issues Steering Committee Membership**

### **Action**

Approve

### **Summary**

During the RISC standard election process the Reliability Issues Steering Committee was unable to secure a nomination for the RISC Vice Chair role. Upon approval of the new membership by the Board of Trustees at its February 2024 open meeting, the RISC Chair requested an additional reach out for interest by members in serving as the RISC Vice Chair.

The RISC Nominating Committee took action without a meeting, and approved and recommends Board of Trustees approval of Morenike Miles, Dominion Energy as Vice Chair of the RISC for a two-term ending January 31, 2026.

## **Reliability and Security Technical Committee Membership**

### **Action**

Approve

### **Summary**

Mr. Greg Stone, Duke Energy resigned his seat on the Reliability and Security Technical Committee (RSTC) due to his retirement from Duke Energy. Based on this resignation a vacancy was created for Sector 1: Investor-owned Utility. The RSTC Charter, page 4 says: "If an interim vacancy is created in a sector, a special election will be held unless it coincides with the annual election process. If a sector cannot fill an interim vacancy, then that sector seat will remain vacant until the next annual election."

A nomination cycle for the Sector 1 vacancy was initiated on April 1 and closed on April 22, 2024. One nomination was received, Todd Lucas, Southern Company. Based on procedure, if only one nomination is received for Sector vacancies, the nominee is automatically elected for the position pending Board of Trustees (Board) approval.

Mr. Lucas, who currently serves as an At-Large Representative on the RSTC, has resigned his At-Large seat pending final Board approval at its May 9, 2024 meeting. Per the RSTC Charter, page 4: Interim sector vacancies will not be filled with an at-large representative.

The RSTC Leadership is requesting Board approval of Mr. Lucas for Sector 1: Investor-owned Utility for a term ending January 31, 2025.

## Project 2016-02 Modifications to CIP Standards

### Action

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

- Reliability Standard - CIP-002-7 - Cyber Security – BES Cyber System Categorization  
[\[CIP-002-7 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-003-10 - Cyber Security – Security Management Controls  
[\[CIP-003-10 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-004-8 - Cyber Security – Personnel & Training  
[\[CIP-004-8 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-005-8 - Cyber Security – BES Cyber System Logical Isolation  
[\[CIP-005-8 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-006-7 - Cyber Security – Physical Security of BES Cyber Systems  
[\[CIP-006-7 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-007-7 - Cyber Security – Systems Security Management  
[\[CIP-007-7 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-008-7 - Cyber Security – Incident Reporting and Response Planning  
[\[CIP-008-7 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-009-7 - Cyber Security – Recovery Plans for BES Cyber Systems  
[\[CIP-009-7 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-010-5 - Cyber Security – Configuration Change Management and Vulnerability Assessments  
[\[CIP-010-5 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-011-4 - Cyber Security – Information Protection  
[\[CIP-011-4 Standard\]](#) [\[Redline to last approved\]](#)
- Reliability Standard - CIP-013-3 - Cyber Security – Supply Chain Risk Management  
[\[CIP-013-3 Standard\]](#) [\[Redline to last approved\]](#)

- Proposed New/Revised Definitions for Inclusion in the *Glossary of Terms used in NERC Reliability Standards*:
  - BES Cyber Asset (BCA)
  - BES Cyber System (BCS)
  - BES Cyber System Information (BCSI)
  - CIP Senior Manager
  - Cyber Assets
  - Cyber Security Incident
  - Cyber System
  - Electronic Access Control or Monitoring System (EACMS)
  - Electronic Access Point (EAP)
  - External Routable Connectivity (ERC)
  - Electronic Security Perimeter (ESP)
  - Interactive Remote Access (IRA)
  - Intermediate System
  - Management Interface
  - Physical Access Control System (PACS)
  - Physical Security Perimeter (PSP)
  - Protected Cyber Asset (PCA)
  - Removable Media
  - Reportable Cyber Security Incident
  - Shared Cyber Infrastructure (SCI)
  - Transient Cyber Asset (TCA)
  - Virtual Cyber Asset (VCA)

[\[Proposed New/Revised Definitions\]](#) [\[Redline to last approved\]](#)

- Implementation Plan  
[\[Implementation Plan\]](#)
- Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs)  
[\[VRF/VSL Justification\]](#)

- Retirements

[CIP-002-5.1a – Cyber Security – BES Cyber System Categorization](#)

[CIP-003-9 – Cyber Security– Security Management Controls](#)

[CIP-004-7 - Cyber Security – Personnel & Training](#)

[CIP-005-7 - Cyber Security – BES Cyber System Logical Isolation](#)

[CIP-006-6 - Cyber Security – Physical Security of BES Cyber Systems](#)

[CIP-007-6 - Cyber Security – Systems Security Management](#)

[CIP-008-6 - Cyber Security – Incident Reporting and Response Planning](#)

[CIP-009-6 - Cyber Security – Recovery Plans for BES Cyber Systems](#)

[CIP-010-4 - Cyber Security – Configuration Change Management and Vulnerability Assessments](#)

[CIP-011-3 - Cyber Security – Information Protection](#)

[CIP-013-2 - Cyber Security – Supply Chain Risk Management](#)

## **Background**

In 2013, NERC initiated the CIP Version 5 Transition Program in collaboration with industry stakeholders and Regional Entities to assist entities with implementation of the “Version 5” Critical Infrastructure Protection (CIP) Reliability Standards.<sup>1</sup> As part of this program, industry volunteers participated in an implementation study under which they would adopt the Version 5 standards prior to their effective date.<sup>2</sup> The implementation study afforded NERC, Regional Entities, and industry the opportunity to assess potential issues with implementation of the Version 5 standards to help ensure entities could transition smoothly to the new requirements. Throughout 2014 and 2015, this group, the Version 5 Transition Advisory Group (V5 TAG), identified implementation issues that would best be addressed through standards revisions.<sup>3</sup>

For one issue, the V5 TAG reported that the Version 5 CIP standards did not specifically address virtualization. “Virtualization is the process of creating virtual, as opposed to physical, versions of computer hardware to minimize the amount of physical hardware resources required to perform various functions.”<sup>4</sup> For example, some of the perimeter-based controls required in the Version 5 standards may be better suited for non-virtualized environments. Therefore, the V5 TAG recommended that a standards development project clarify the permitted architecture due to the increasing use of virtualization in industrial control system environments.

The Standards Committee assigned the Project 2016-02 “CIP Modifications” drafting team to address the issues identified by the V5TAG as well as to address directives from Federal Energy Regulatory Commission (FERC) Order Nos. 822 and 843. The Project 2016-02 drafting team has completed all other items in its Standard Authorization Request (SAR), which the Standards Committee accepted on July 20, 2016. The proposed standards address the remaining issues assigned to Project 2016-02.<sup>5</sup>

Subsequently, on February 20, 2020, FERC issued (1) a Notice of Inquiry seeking comments on the potential benefits and risks associated with the use of virtualization and cloud computing

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<sup>1</sup> The “Version 5” Reliability Standards refer to CIP-002-5.1, CIP-003-5, CIP-004-5, CIP-005-5, CIP-006-5, CIP-007-5, CIP-008-5, CIP-009-5, CIP-010-1, and CIP-011-1.

<sup>2</sup> NERC, *Implementation Study Final Report – CIP Version 5 Transition Program* (Oct. 2014), [https://www.nerc.com/pa/CI/tpv5impmntnstdy/CIPv5\\_Implem\\_Study\\_Final\\_Report\\_Oct2014.pdf](https://www.nerc.com/pa/CI/tpv5impmntnstdy/CIPv5_Implem_Study_Final_Report_Oct2014.pdf).

<sup>3</sup> NERC, *CIP V5 Issues for Standard Drafting Team Consideration* (Sept. 15, 2015), [https://www.nerc.com/pa/Stand/Project%20201602%20Modifications%20to%20CIP%20Standards%20DL/Transfer\\_Issues\\_V5T-AG-SDT\\_1st-final-03232016.pdf](https://www.nerc.com/pa/Stand/Project%20201602%20Modifications%20to%20CIP%20Standards%20DL/Transfer_Issues_V5T-AG-SDT_1st-final-03232016.pdf).

<sup>4</sup> *Virtualization and Cloud Computing Services*, Notice of Inquiry, 170 FERC ¶ 61,110 at P 4 (2020) (citing the National Institute of Standards and Technology (“NIST”), Guide to Security for Full Virtualization Technologies, Special Publication 800-125 (Jan. 2011), <https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-125.pdf>).

<sup>5</sup> The Project 2021-03 CIP-002 drafting team is completing the Transmission Owner Control Center issue from the Project 2016-02 SAR.

services for Bulk Electric System (BES) operations; and (2) an order directing NERC to file Project 2016-02 schedule updates on a quarterly basis.<sup>6</sup> Commenters responding to the Notice of Inquiry, including NERC, generally agreed there were benefits to virtualization as long as risks were addressed through clarification of protections in the CIP Reliability Standards.

## **Summary**

The proposed revisions in the eleven CIP Reliability Standards and associated new and revised Glossary terms enable entities to securely use virtualized technologies for BES Cyber Systems. Specifically, entities may continue using perimeter network-based controls with virtual or non-virtual systems, but the standards revisions allow for entities to use Zero Trust model. The proposed revisions provide an important step for CIP Reliability Standards to accommodate newer technologies, imparting a degree of “future proofing” to the CIP Reliability Standards to respond to the fast-changing pace of technology. In addition, the proposed revisions make other clarifications and minor revisions to the CIP Reliability Standards that have been identified since Version 5 standards became effective. The following provides a summary of key revisions.

## **Virtualization**

While entities could use virtualized technologies to some extent under the Version 5 standards, the Project 2016-02 drafting team made the following clarifications to better facilitate use of virtualization under the CIP Reliability Standards, among others:

- Clarifying the Electronic Security Perimeter is a security model rather than only a network topology-based perimeter, enabling entities to use a “Zero Trust” model, for example.
- Developing terms such as “Shared Cyber Infrastructure” and “Management Interface” to address risks, for example, by preventing use of “mixed trust”, where virtual machines of varying impact levels share the same central processing units, among other components, and the occurrence of “side channel” attacks where virtual systems executing on the same hardware could affect one another<sup>7</sup>.
- Applying certain CIP requirements and protections to Shared Cyber Infrastructure as an Applicable System.
- Broadening change management requirements by focusing requirements on a security objective of controlling the implementation of intended changes to software or settings that could weaken certain cyber security controls rather than only permitting a baseline configuration.

## **Interactive Remote Access**

As part of a V5 TAG-identified issue, the proposed revisions clarify that CIP-005 requirements will apply if: (1) a medium or high impact BES Cyber System only has non-routable connectivity (i.e., serial) but is subsequently converted to routable protocol; and (2) a remote user can still gain Interactive Remote Access to the BES Cyber System.

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<sup>6</sup> *N. Am. Elec. Reliability Corp.*, Order Directing Informational Filings Regarding NERC Standard Drafting Projects, 170 FERC ¶ 61,109 (Feb. 20, 2020).

<sup>7</sup> Additional information on the rationale behind new and revised terms is included here: [https://www.nerc.com/pa/Stand/Project 201602 Modifications to CIP Standards DL/2016-02\\_CIP\\_Definitions\\_and\\_Exemptions\\_Technical\\_Rationale\\_04032024.pdf](https://www.nerc.com/pa/Stand/Project%20201602%20Modifications%20to%20CIP%20Standards%20DL/2016-02_CIP_Definitions_and_Exemptions_Technical_Rationale_04032024.pdf).



### **CIP Exceptional Circumstances**

The Project 2016-02 drafting team reviewed which requirements were most appropriate for CIP Exceptional Circumstances, which entities may declare during certain, defined emergencies to stop complying with particular CIP standards requirements in the interest of supporting reliability.

### **Incorporation of CIP-002-5.1a Interpretation**

The proposed revisions incorporate the CIP-002-5.1a interpretation regarding “shared BES Cyber Systems” by clarifying that each “discrete” shared BES Cyber System meets medium impact rating 2.1 in Attachment 1 to CIP-002-7.

### **Technical Feasibility Exception**

The proposed revisions replace language that triggers the use of the Technical Feasibility Exception procedure in the NERC Rules of Procedure Appendix 4D with the term “per system capability” that requires entities to document limits to a system but not engage in the Appendix 4D procedure.

### **Standards Development Process**

Given the highly technical nature of the revisions and the need to respond to entities’ comments for maintaining perimeter-based controls while also allowing for different security models, such as Zero Trust, the Project 2016-02 drafting team dedicated several ballot periods to developing the language that achieved consensus. In addition, the Project 2016-02 drafting team completed several other items on its SARs, such as CIP-003-7, CIP-003-8, and CIP-012-1, among others, prior to focusing on virtualization. The first draft of the proposed standards was posted for an initial 60-day formal comment period and ballot from January 22, 2021 – March 22, 2021. The results are included below.

<b>Standard</b>	<b>Approval</b>	<b>Quorum</b>
CIP-002-7	38.97	91.42
CIP-003-9	48.44	91.09
CIP-004-7	51.31	91.03
CIP-005-8	26.36	91.03
CIP-006-7	42.81	91.03
CIP-007-7	42.43	91.03
CIP-008-7	52.87	91.03
CIP-009-7	53.26	90.7
CIP-010-5	32.53	91.03
CIP-011-3	47.38	90.7
CIP-013-3	51.37	90.7

The drafting team made revisions based on the comments received and posted for an additional 64-day formal comment period and ballot from June 30, 2021 – September 1, 2021. Between the initial ballot and the additional ballot, other standards projects opened some of the same standards as this drafting team. Therefore, some of the standards removed the version number until such time as they passed industry ballot and could be assigned the next version properly. The results are included below.

Standard	Approval	Quorum
CIP-002-7	36.32	88.12
CIP-003-Y	41.67	88.12
CIP-004-Y	38.21	88.37
CIP-005-8	20.31	88.04
CIP-006-7	42.32	88.04
CIP-007-7	29.49	88.04
CIP-008-7	49.63	88.37
CIP-009-7	49.88	88.37
CIP-010-5	33.32	88.37
CIP-011-Y	40.29	88.37
CIP-013-3	41.56	88.37

Following this ballot, the drafting team made revisions based on the comments received and posted the revised drafts for a 54-day second additional formal comment period and ballot from February 18, 2022 – April 12, 2022. The results are included below.

Standard	Approval	Quorum
CIP-002-7	72.84	82.89
CIP-003-Y	73.36	82.89
CIP-004-8	76.97	83.11
CIP-005-8	60.73	83.11
CIP-006-7	76.08	83.11
CIP-007-7	61.36	83.11
CIP-008-7	78.62	83.11
CIP-009-7	78.37	82.77
CIP-010-5	56.69	82.77
CIP-011-4	79.04	82.77
CIP-013-3	78.62	83.11

The drafting team made revisions based on the comments received and posted for a third 52-day additional formal comment period and ballot from August 17, 2022 – October 7, 2022. The results are included below.

Standard	Approval	Quorum
CIP-002-7	94.63	77.89
CIP-003-Y	84.90	77.89
CIP-004-8	84.60	78.07
CIP-005-8	65.26	78.41
CIP-006-7	92.60	78.07
CIP-007-7	67.38	77.74
CIP-008-7	95.67	77.74
CIP-009-7	95.38	77.74
CIP-010-5	46.35	78.07
CIP-011-4	82.59	77.74
CIP-013-3	82.88	77.74

On October 19, 2022, the Standards Committee approved a waiver under Section 16.0 of the Standard Processes Manual authorizing additional formal comment and ballot period(s) to be reduced from 45 days to as few as 20 calendar days, with ballot conducted during the last 10 days of the comment period.

The drafting team made changes to the draft standards that did not pass the last ballot which included CIP-005-8, CIP-007 and CIP-010. There were also conforming changes needed in CIP-003 and CIP-004. These standards were posted for a fourth additional 58 formal comment period and ballot from October 3, 2023- November 29, 2023. The results are below.

Standard	Approval	Quorum
CIP-003-10	93.80	82.94
CIP-004-8	84.73	83.84
CIP-005-8	72.73	83.84
CIP-007-7	89.32	83.84
CIP-010-5	74.46	84.18

The 10-day final ballot was conducted from April 3, 2024 – April 12, 2024. The results are below.

Standard	Approval	Quorum
CIP-002-7	84.62	94.37
CIP-003-9	85.57	93.63
CIP-004-7	85.81	86.30
CIP-005-8	85.81	75.73
CIP-006-7	83.84	94.70
CIP-007-7	85.81	90.24
CIP-008-7	83.84	96.05
CIP-009-7	83.84	95.80
CIP-010-5	86.15	76.98
CIP-011-3	83.84	86.21
CIP-013-3	83.84	86.47

### Minority Issues

None

### Pertinent FERC Directives

*N. Am. Elec. Reliability Corp.*, Order Directing Informational Filings Regarding NERC Standard Drafting Projects, 170 FERC ¶ 61,109 (Feb. 20, 2020) (directing NERC to submit quarterly progress reports on this project to the Commission).

### Cost Effectiveness

The standard drafting team sought stakeholder input on the cost effectiveness of the proposed standards during the formal comment periods. The requirements do not require entities to adopt virtualization, so there are no or minimal cost impacts.

### Additional Information

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

[\[Project 2016-02 Modifications to CIP Standards\]](#)

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Project 2016-02 Modifications to CIP Standards

Soo Jin Kim, Vice President, Engineering, Standards, and PRISM  
Board of Trustees Meeting  
May 9, 2024

**RELIABILITY | RESILIENCE | SECURITY**



- Summary

- Proposed eleven CIP Standards that enable secure use of virtualized technologies for BES Cyber Systems
  - Can use perimeter network-based controls with virtual or non-virtual systems but also can use other security models, such as “Zero Trust”
- Other clarifications and minor revisions identified since Version 5 became effective

- Reliability Benefits

- Impart a degree of “future proofing” to the CIP Reliability Standards to respond to the fast-changing pace in technology
- Option to use “Zero Trust” security model
- Broadens change management requirements to security objectives

- Action

- Adopt

- CIP-002-7
- CIP-003-10
- CIP-004-8
- CIP-005-8
- CIP-006-7
- CIP-007-7
- CIP-008-7
- CIP-009-7
- CIP-010-5
- CIP-011-4
- CIP-013-3
- New/Revised Definitions

- Approve

- Associated implementation plan
- Violation Risk Factors and Violation Severity Levels
- Retirement of preceding versions

- Authorize staff to file with applicable governmental authorities





# Questions and Answers

## **Regional Reliability Standard FAC-501-WECC-4 Transmission Maintenance**

### **Action**

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

- Reliability Standard FAC-501-WECC-4-Transmission Maintenance  
[FAC-501-WECC-4 Standard](#) | [Redline to last approved \(FAC-501-WECC-2\)](#)
- Major WECC Transfer Paths in the Bulk Electric System – Path List Revision Process (“Table Revision Process”)  
[\[Table Revision Process\]](#)
- Implementation Plan  
[\[Implementation Plan\]](#)
- Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs)  
[See Standard]
- Retirement  
[FAC-501-WECC-2](#)

### **Background**

The FAC-501-WECC standard is a Regional Reliability Standard that requires owners of certain transmission paths to have a transmission maintenance and inspection plan for those paths, annually update its plan, and adhere to its plan. The Regional Reliability Standard applies only to entities in the Western Interconnection. The currently effective version, Reliability Standard FAC-501-WECC-2, became effective in 2018.

The proposed Regional Reliability Standard FAC-501-WECC-4 was developed in accordance with the WECC Reliability Standards Development Procedures (“RSDP”) as part of a five-year review of FAC-501-WECC-2, Transmission Maintenance. Proposed Version 4 reflects the work of two distinct WECC projects. The first project focused on removing four paths from FAC-501-WECC-2. This project resulted in the development of FAC-501-WECC-3, which was not submitted to the NERC Board of Trustees (Board). The second project further revised the FAC-501-WECC regional standard by: 1) removing the Major WECC Transfer Paths in the Bulk Electric System (BES) Table from the Regional Reliability Standard; 2) creating a freestanding Table Revision Process that describes the procedure whereby paths are added to or removed from the Major WECC Transfer Paths in the BES Table; and 3) including the Major WECC Transfer Paths in the BES Table as Attachment A to the Table Revision Process. The combined result of these two projects was proposed Regional Reliability Standard FAC-501-WECC-4.

Proposed Regional Reliability Standard FAC-501-WECC-4 would continue to ensure that the Transmission Owner of a path identified on the Major WECC Transfer Paths Table has a Transmission Maintenance and Inspection Plan (TMIP) for those paths, annually updates its TMIP

and adheres to the TMIP. However, the proposed regional standard and associated Table Revision Process would improve upon the currently effective standard by creating a more timely and agile process for adding and removing Paths subject to FAC-501-WECC-4 and other NERC Requirements.

The WECC Board of Directors adopted the proposed Regional Reliability Standard FAC-501-WECC-4 on June 14, 2023.

### **Summary**

The proposed regional Reliability Standard FAC-501-WECC-4 modifies the currently effective Regional Reliability Standard FAC-501-WECC-2 as follows:

- Deletes Attachment B, Major WECC Transfer Paths in the BES Table from FAC-501-WECC-2 and migrates it into a new Table Revision Process as Attachment A.
- Adds a Background section and a Facilities section.
- Makes conforming changes for clarity, readability, and to incorporate NERC's newest template language.
- Revises the Major WECC Transfer Paths in the BES Table to remove four paths.

Corresponding to the changes in the regional standard, WECC created a Table Revision Process that describes the procedure whereby paths are added to or removed from the Major WECC Transfer Paths in the BES Table. The Table Revision Process includes but is not limited to: a detailed technical study; a review of any potential impact on other standards, including remediation if needed; notice of the proposed change with a request for comments; a presentation of findings and recommendations; and a ballot to determine whether the changes should be adopted. The Major WECC Transfer Paths in the BES Table itself is included as an Attachment to the Table Revision Process. Any changes to the Table Revision Process must be first approved by the NERC Board and the Federal Energy Regulatory Commission ("FERC") prior to becoming effective; any changes to the paths listed in the Table would be submitted to NERC and FERC for informational purposes.

NERC staff supports the proposed Regional Reliability Standard and associated Table Revision Process. The proposed standard continues to be more stringent than continent-wide requirements. NERC posted the proposed standard for a 45-day comment period from August 16 - September 29, 2023 and sought comments on whether the standard (1) was developed in a fair and open process using the WECC RSDP; (2) poses an adverse impact to reliability or commerce in a neighboring region or interconnection; (3) poses a serious and substantial threat to public health, safety, welfare, or national security; (4) poses a severe and substantial burden on competitive markets within the interconnection that is not necessary for reliability; and (5) either has more specific criteria for the same requirements covered in a continent-wide standard, has requirements that are not included in the corresponding continent-wide standard, or is necessitated by a physical difference in the BES. No substantive concerns were raised in the comments.

### **Minority Issues**

None.

**Pertinent FERC Directives**

None.

**Cost Effectiveness**

NERC is not aware of any cost concerns.

**Additional Information**

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

[\[WECC Standards & Standards Under Development\]](#)

# NERC

NORTH AMERICAN ELECTRIC  
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# Reliability Standard FAC- 501-WECC-4

Soo Jin Kim, Vice President, Engineering, Standards, and PRISM  
Board of Trustees Meeting  
May 9, 2024

**RELIABILITY | RESILIENCE | SECURITY**



- **Background**

- The FAC-501-WECC-4 was developed in accordance with the WECC Reliability Standards Development Procedures (“RSDP”) as part of a five-year review of FAC-501-WECC-2, Transmission Maintenance

- **Revisions**

- Deletes Attachment B, Major WECC Transfer Paths in the Bulk Electric System Table from FAC-501-WECC-2 and migrates it into a new Table Revision Process as Attachment A
- Creates the Table Revision Process that describes the procedure whereby paths are added to or removed from the Major WECC Transfer Paths in the Bulk Electric System Table
- Adds a Background section and a Facilities section
- Makes conforming changes for clarity, readability, and to incorporate NERC’s newest template language
- Revises the Major WECC Transfer Paths in the Bulk Electric System Table to remove four paths

- Reliability Benefits

- To ensure that the Transmission Owner of a path identified on the Major WECC Transfer Paths Table has a Transmission Maintenance and Inspection Plan (TMIP) for those paths, annually updates its TMIP and adheres to the TMIP
- The proposed Regional Reliability Standard and Table Revision Process will create a more timely and agile process for adding/removing Paths subject to FAC-501-WECC-4 and other NERC requirements

- Action

- Adopt
  - Reliability Standard FAC-501-WECC-4 – Transmission Maintenance
  - Table Revision Process

A map of North America is shown in a light blue color. A dark blue horizontal band is overlaid across the center of the map, passing through the United States. The text "Questions and Answers" is centered within this band.

# Questions and Answers



## Project 2023-03 Internal Network Security Monitoring

### Action

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

- Reliability Standard - CIP-015-1 - Cyber Security – Internal Network Security Monitoring
  - [\[CIP-015-1 Standard\]](#)
- Implementation Plan
  - [\[Implementation Plan\]](#)
- Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs)
  - [\[VRF VSL Justification\]](#)

### Background

On January 19, 2023, the Federal Energy Regulatory Commission (FERC) issued Order No. 887<sup>1</sup> directing NERC to develop requirements within the Critical Infrastructure Protection (CIP) Reliability Standards for Internal Network Security Monitoring (INSM) of all high-impact Bulk Electric System (BES) Cyber Systems and medium impact BES Cyber Systems with External Routable Connectivity. INSM permits entities to monitor traffic within a trusted zone, such as the Electronic Security Perimeter, to detect intrusions or malicious activity. Specifically, Order No. 887 directs NERC to develop Reliability Standards requirements for any new or modified CIP Reliability Standards that address the three security issues.<sup>2</sup> In Order No. 887, FERC directed NERC to submit these revisions for approval within 15 months of the final rule’s effective date, i.e., July 9, 2024.

Order No. 887 also directed NERC to conduct a study on the risks of lack of INSM for medium impact BES Cyber Systems without External Routable Connectivity, and all low-impact BES Cyber Systems, and on the challenges and solutions for implementing INSM for those BES Cyber Systems. NERC completed the study and filed it with FERC in Docket No. RM22-3-000 on January 18, 2024.

The Standards Committee assigned the Project 2023-03 “Internal Network Security Monitoring (INSM)” drafting team to address the directives from FERC Order No. 887. The Project 2023-03 DT has completed all other items in its Standard Authorization Request, which the Standards Committee accepted on August 23, 2023.

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<sup>1</sup> *Internal Network Security Monitoring for High and Medium Impact Bulk Electric System Cyber Systems*, Order No. 887, 182 FERC ¶ 61,021 (2023).

<sup>2</sup> Any new or modified CIP Reliability Standards should address the following security issues: (1) the need for responsible entities to develop baselines of their network traffic inside their CIP-networked environment; (2) the need for responsible entities to monitor for and detect unauthorized activity, connections, devices, and software inside the CIP-networked environment; and (3) require responsible entities to identify anomalous activity to a high level of confidence by logging network traffic, maintaining logs and other data collected regarding network traffic, and implementing measures to minimize the likelihood of an attacker removing evidence of their tactics, techniques, and procedures from compromised devices. *Id.* P 5.

## **Summary**

Proposed Reliability Standard CIP-015-1 establishes the INSM systems and processes that Responsible Entities must implement, as contemplated by FERC Order No. 887. Proposed Reliability Standard CIP-015-1 would require Responsible Entities to evaluate their networks within Electronic Security Perimeters and identify the collection location(s) and method(s) that would be most effective for detecting anomalous activity in their particular network configurations. Responsible Entities would be required to collect, analyze, and respond appropriately to anomalous suspicious network communications within applicable networks. Under the proposed standard, Responsible Entities must evaluate and escalate these anomalous activity occurrences, if appropriate, for further investigation. Subsequent investigation could include escalation to a Responsible Entity's CIP-008 Cyber Security Incident Reporting and Response Planning process(es) if the anomalous activity being investigated may be related to an actual Cyber Security Incident that meets the definition in the NERC Glossary of Terms. Responsible Entities must also appropriately protect the collected INSM related network communications data to prevent unauthorized data manipulation and preserve the data as needed to facilitate additional investigation.

INSM will be an on-going, or possibly an iterative, process enabling Responsible Entities to actively identify, mitigate, and escalate potentially threatening actions before they are allowed to impact the reliable operation of the BES.

## **Standards Development Process**

On August 8, 2023, the Standards Committee granted the drafting team's request for waiver due to regulatory deadlines. The waiver provided the following: (1) initial formal comment and ballot period reduced from 45 days to as few as 30 calendar days, with ballot pools formed in the first 20 days, and initial ballot and non-binding poll of Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs) conducted during the last 5 days of the comment period; (2) additional formal comment and ballot period(s) reduced from 45 days to as few as 20 calendar days, with ballot(s) and non-binding poll(s) conducted during the last five days of the comment period; and (3) final ballot reduced from 10 days to as few as five calendar days.

For the initial posting, the drafting team proposed modifications to CIP-007. A proposed draft of CIP-007-X was posted for a 34-day initial formal comment period and ballot from January 8, 2024 – January 17, 2024. After failing to pass the initial ballot, the drafting team unanimously voted to cease revising CIP-007 and to instead create a new Reliability Standard, CIP-015-1.

On February 21, 2024, the Standards Committee granted the drafting team's second request for a waiver to further modify additional formal comment and ballot periods to be reduced from 45 days to as few as 10 calendar days with ballot(s) and non-binding poll(s) conducted during the last five days of the comment period. The first draft of proposed Reliability Standard CIP-015-1 was posted for a 20-day additional formal comment period and ballot from March 12, 2024 to March 18, 2024.<sup>3</sup> The additional ballot failed to achieve the required ballot body approval.

A revised draft of Reliability Standard CIP-015-1 was posted for an additional formal comment period and ballot from April 5, 2024 – April 17, 2024. The additional ballot results can be found on the project page and will be reviewed with the Board at the meeting.

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<sup>3</sup> While the first posting of this standard, this posting was treated as additional formal comment and ballot period for Project 2023-03 under NERC's *Standard Processes Manual* due to the earlier initial comment and ballot period.

The seven-day final ballot was conducted April 24, 2024 – April 30, 2024. The results can be found on the project page and will be reviewed with the Board at the meeting.

### **Minority Issues**

Early in the development process, the drafting team was made aware of a stakeholder opinion that Electronic Access Control and Monitoring Systems (EACMS) and Physical Access Control Systems (PACS) outside of the Electronic Security Perimeter (ESP) should be included within the scope of the standard to be fully consistent with Order No. 887. The drafting team therefore included these devices in an earlier draft. Commenters overwhelmingly disagreed with the inclusion, and ultimately the drafting team determined these devices should not be included within the scope of CIP-015-1.

### **Pertinent FERC Directives**

*Internal Network Security Monitoring for High and Medium Impact Bulk Electric System Cyber Systems*, Order No. 887, 182 FERC ¶ 61,021, at PP 5-6 (2023), available at: [Order Regarding Internal Network Security Monitoring](#)

### **Cost Effectiveness**

The drafting team sought stakeholder input on the cost effectiveness of the proposed standards (CIP-007-X and then CIP-015-1) during the formal comment periods. Comments received indicate that the cost of personnel, products purchased, and the size of the utility could impact the cost to implement proposed Reliability Standard CIP-015-1 – Cyber Security – Internal Network Security Monitoring.

### **Additional Information**

A link to the project history and files is included here for reference:  
[\[Project 2023-03 Internal Network Security Monitoring\]](#)

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Project 2023-03 Internal Network Security Monitoring

Soo Jin Kim, Vice President, Engineering, Standards, and PRISM  
Board of Trustees Meeting  
May 9, 2024

**RELIABILITY | RESILIENCE | SECURITY**



- **Background**

- On January 19, 2023, FERC issued Order No. 887 directing NERC to develop requirements within the CIP Reliability Standards for Internal Network Security Monitoring (INSM) of all high impact BES Cyber Systems and medium impact BES Cyber Systems with External Routable Connectivity (ERC).
- INSM permits entities to monitor traffic within a trusted zone to detect intrusions or malicious activity.
- In Order No. 887, FERC directed NERC to submit these revisions for approval within 15 months of the final rule's effective date, i.e., July 9, 2024.

- **Reliability Benefits**

- The CIP-networked environment remains vulnerable to attacks that bypass network perimeter-based security controls traditionally used to identify early phases of an attack. INSM requirements are proposed to:
  - Require INSM for all high impact BES Cyber Systems and medium impact BES Cyber Systems with External Routable Connectivity to ensure the detection of anomalous network activity indicative of an attack in progress;
  - Increase the probability of early detection; and
  - Allow for quicker mitigation and recovery from attack.

- **Action**

- Adopt
  - CIP-015-1 – Cyber Security – Internal Network Security Monitoring



# Questions and Answers