

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	6
II. INTRODUCTION TO NERC AND THE ERO ENTERPRISE	9
III. SATISFACTION OF STATUTORY AND REGULATORY CRITERIA FOR DELEGATION TO REGIONAL ENTITIES	11
IV. NERC CONTINUED DEVELOPMENT OF RELIABILITY STANDARDS FOR AN ADEQUATE LEVEL OF RELIABILITY OF THE BPS AND ENHANCED ITS STANDARDS DEVELOPMENT PROCESS	14
a. Revising Reliability Standards For A Reliable, Secure, and Resilient BPS	15
b. Global Covid-19 Pandemic Impacts and Response	18
c. Enhancing The Reliability StandardS Development Process	19
V. HARMONIZING AND ENHANCING RISK-BASED EXECUTION OF THE COMPLIANCE MONITORING AND ENFORCEMENT (“CMEP”) PROGRAM.....	20
VI. REFINING THE ELECTRICITY INFORMATION SHARING AND ANALYSIS CENTER (“E-ISAC”) PROGRAM TO ENHANCE THE ELECTRIC INDUSTRY’S SECURITY POSTURE	24
VII. MODERNIZING COMMITTEE STRUCTURES FOR EFFECTIVENESS AND EFFICIENCY	29
a. Regulatory Oversight Committee (“ROC”).....	29
b. Establishing the Reliability and Security Technical Committee (“RSTC”) and Fostering Standing Committee Coordination.....	30
VIII. OTHER ACTIVITIES TACKLING THE RELIABILITY AND RESILIENCE CHALLENGES OF GRID TRANSFORMATION AND EXTREME WEATHER.....	32
a. Executing the Inverter Based Resource (“IBR”) Strategy	33
b. Executing a Response to Prepare for Extreme Weather	36
c. Executing a Strategy for Energy Assurance under an Interconnected BPS.....	41
d. Launching the Interregional Transfer Capability Study (“ITCS”).....	43
IX. INVESTING IN INFRASTRUCTURE TO SUPPORT AUTOMATION AND REDUCE ENTERPRISE RISK	45
X. COORDINATION WITH GOVERNMENTAL AUTHORITIES IN CANADA AND MEXICO	47
XI. NOTICES AND COMMUNICATIONS	49
XII. CONCLUSION	49

TABLE OF CONTENTS

Appendix A	Enhanced Reliability Standards Development Procedures & Prioritization
Appendix B	Harmonizing a Risk-Based Approach to CMEP
Appendix C	E-ISAC Program Refinements
Appendix D	NERC's Internal Audit Update on Status of Management Action Plans under 2023 Appendix 4A Audit
Appendix E	Stakeholder Comments in Response to April 2024 Draft Posting

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

North American Electric Reliability Corporation)
)

Docket No. _____

**NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
ELECTRIC RELIABILITY ORGANIZATION PERFORMANCE ASSESSMENT
REPORT IN ACCORDANCE WITH 18 C.F.R. § 39.3(c)**

The North American Electric Reliability Corporation (“NERC”) respectfully submits this Electric Reliability Organization (“ERO”) Performance Assessment for the 2019-2023 Assessment Period (the “Performance Assessment”)¹ in accordance with Federal Energy Regulatory Commission (“FERC” or “Commission”) regulations at 18 C.F.R. §39.3(c) and Commission directive under Order No. 672.² This Performance Assessment reports on the ERO’s effective execution of its statutory responsibilities under section 215 of the Federal Power Act³ during the Assessment Period and NERC’s efforts, in coordination with its Regional Entities (together with NERC, the “ERO Enterprise”)⁴ and stakeholders, to support a secure and reliable grid for North America.

In detailing NERC’s performance and vision for the coming years, this Performance Assessment will, consistent with Commission regulations:

¹ The Assessment Period is January 1, 2019 through December 31, 2023.

² *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, 114 FERC ¶ 61,104, *order on reh’g*, Order No. 672-A, 114 FERC ¶ 61,328 (2006). NERC was certified by the Commission as the ERO, pursuant to § 215(c) of the Federal Power Act (“FPA”), by Commission order issued July 20, 2006. *Order Certifying North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, 116 FERC ¶ 61,062 (2006) [hereinafter NERC ERO Certification Order].

³ 16 U.S.C. § 824o [hereafter section 215].

⁴ The Regional Entities are (i) Midwest Reliability Organization (“MRO”); (ii) Northeast Power Coordinating Council, Inc. (“NPCC”); (iii) ReliabilityFirst Corporation (“ReliabilityFirst”); (iv) SERC Reliability Corporation (“SERC”); (v) Texas Reliability Entity, Inc. (“Texas RE”); and (vi) Western Electricity Coordinating Council (“WECC”). Please note, unless otherwise defined herein, all capitalized terms should be assigned the meanings reflected in the NERC Glossary posted on NERC’s website.

- (i) Demonstrate that NERC continues to satisfy the requirements for ERO certification as stated in 18 C.F.R. § 39.3(b);
- (ii) Describe how NERC enhanced its operations, activities, oversight, and procedures in response to ERO Enterprise leadership and stakeholder feedback;⁵ and
- (iii) Provide an overview of NERC’s evaluation of the effectiveness of Regional Entities in carrying out delegated duties.

Pursuant to section 215 and implementing Commission regulations, the Commission may certify an ERO which:

1. Has the ability to develop and enforce, subject to § 39.7, Reliability Standards that provide for an adequate level of reliability of the Bulk-Power System, and
2. Has established rules that:
 - (i) Assure its independence of users, owners and operators of the Bulk-Power System while assuring fair stakeholder representation in the selection of its directors and balanced decision making in any Electric Reliability Organization committee or subordinate organizational structure;
 - (ii) Allocate equitably reasonable dues, fees, and charges among end users for all activities under this part;
 - (iii) Provide fair and impartial procedures for enforcement of Reliability Standards through the imposition of penalties in accordance with § 39.7, including limitations on activities, functions, operations, or other appropriate sanctions or penalties;
 - (iv) Provide reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing Reliability Standards, and otherwise exercising its duties; and
 - (v) Provide appropriate steps, after certification by the Commission as the Electric Reliability Organization, to gain recognition in Canada and Mexico.”⁶

This Performance Assessment reflects feedback from Regional Entities, industry stakeholders and Commission staff. The draft was posted for public comment between **April 9 -**

⁵ Comments on NERC’s public posting of the draft Performance Assessment are attached consistent with Commission directive. *See Order on the Electric Reliability Organization’s Five-Year Performance Assessment*, 149 FERC ¶ 61,141 (2014).

⁶ 18 C.F.R. § 39.3(b) (2024).

April 30, 2024 and presented to the NERC Board of Trustees (“Board”) thereafter. One comment was received from the Edison Electric Institute (“EEI”) and has been addressed below. In addition, throughout the Assessment Period NERC gathered broad stakeholder input on a number of aspects of its operations at Board and Standing Committee meetings. For example, the Standards Process Stakeholder Engagement Group provided recommendations in October 2022 that led to process enhancements (such as the Rules of Procedure revisions discussed herein) to ensure the continued strength and agility of the standards development program amidst changing grid conditions. The Member Representatives Committee also provided comments in January 2023 regarding prioritization and efficiency, which NERC leveraged to make further standards development process improvements, and which the Reliability and Security Technical Committee referred to in creating a Standard Authorization Request development process. (*See, e.g.*, Section IV and **Appendix A**). This ongoing stakeholder feedback and collaboration has been critical as NERC enhanced its operations, activities, oversight, and procedures over the Assessment Period.

NERC also increased pre-filing outreach with Commission staff throughout this cycle and prepared **Appendices A through D** to elaborate on areas of particular interest. These areas include (i) enhancements to the Reliability Standards development process and prioritization of activities (**Appendix A**); (ii) Compliance Monitoring and Enforcement Program (“CMEP”) activities and harmonization of risk identification (**Appendix B**); (iii) Electricity Information Sharing and Analysis Center (“E-ISAC”) enhancements and activities (**Appendix C**); and (iv) an update on Management Action Plans resulting from NERC’s 2023 Appendix 4A audits of Regional Entities (**Appendix D**). NERC appreciates feedback received throughout this process and the opportunity to elaborate on NERC’s execution of its responsibilities under section 215 of the Federal Power Act. NERC respectfully requests that the Commission accept this Performance Assessment.

I. EXECUTIVE SUMMARY

The electric industry is experiencing rapid change in how systems are planned, designed, operated, and secured, requiring significant collaboration to assure the reliability, resilience, and security of the interconnected Bulk Power System (“BPS”). Throughout the 2019-2023 Assessment Period, NERC took steps to target existing risks, identify and address new and emerging risks, engage stakeholders new to NERC regulation, and navigate the jurisdictional intricacies presented by the grid transformation.

The recent 2024 State of Reliability Report demonstrates that NERC’s efforts, in collaboration with the ERO Enterprise, existing stakeholder groups, governmental authorities, and stakeholder groups such as those within the inverter-based resource and natural gas communities, have resulted in high and improving grid performance.⁷ The ERO Enterprise’s collaboration and efforts in these areas are already producing critical analyses and returning results as innovation continues. This approach is crucial to ERO Enterprise success, particularly in a growing risk environment affecting areas with novel issues related to jurisdictional boundaries across matters including distributed energy resources, fuel assurance, and resource adequacy. Throughout the Assessment Period, the ERO Enterprise achieved notable successes in favor of reliability (including equipping industry to tackle cybersecurity risks and plan for extreme weather) and set the stage to continue to advance reliability, resilience, and security in support of the needs of nearly 400 million people in North America.

⁷ NERC 2024 State of Reliability Report (June 2024), [https://www.nerc.com/pa/RAPA/PA/Performance Analysis DL/NERC_SOR_2024_Overview.pdf](https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2024_Overview.pdf). The report highlights that (i) severe yet routine weather events confirm overall resilience of the BPS; (ii) the performance of inverter-based resources continues to impact the BPS; (iii) generation forced outage rates continue to increase; and (iv) the reliability performance of the Texas interconnection (which includes a large number of IBRs) continues to improve in the face of new challenges.

The successes described in this Performance Assessment demonstrate the continued viability and effectiveness of the ERO model as envisioned in section 215 of the Federal Power Act. This model leverages broad technical expertise across diverse stakeholder groups and ensures the independence and agility required to advance reliability in a changing world. As an independent ERO, NERC’s stakeholder processes ensure broad participation to advance the reliability of the BPS. In light of recent challenges associated with the modern grid and extreme weather, NERC has increased outreach to interested stakeholders via webinars, advisory groups on emerging issues, and discussions at standing committee meetings.⁸ Through this model, NERC effectively achieves a critical balance between independence, collaboration, and results.

To ensure the continued reliability of the BPS and to stay at the forefront of this complex, dynamic environment, during the Assessment Period NERC refocused its internal planning horizon to prioritize activities and resources across a three-year lifecycle instead of the prior year-to-year basis. NERC is also growing partnerships with key stakeholders—including state regulators, inverter-based resources and natural gas sector representatives—to enhance effectiveness and efficiency. To provide more clarity, NERC adopted four focus areas to guide efforts during current and future Assessment Period:

- (i) Energy: Tackling the reliability and resilience challenges with the changing resource mix, ensuring sufficient amounts of energy and essential reliability services are available for reliable operation, and improving system performance during extreme weather and add transfer capability;
- (ii) Security: Enhancing the focus on physical and cyber security risks, monitoring, mitigation, and evolution;
- (iii) Agility: Becoming a more nimble organization in in key areas, such as standards development, internal operational processes, and technical deliverables; and

⁸ These efforts include drafting a request for information that will be sent out to relevant entities (starting with Balancing Authorities and Transmission Owners) once the Commission acts on the proposed Registry Criteria to assist in the identification of potential Category 2 GOs and GOPs.

- (iv) Sustainability: Investing in automation, eliminating single points of failure, and strengthening the ERO Enterprise’s long-term stability and success.⁹

NERC and ERO Enterprise accomplishments in each of these focus areas are detailed throughout this Performance Assessment, including the following activities where NERC:

- Revised the Reliability Standards development process to prepare for expeditious updates to Reliability Standards in support of the modern grid;
- Began modernizing the NERC Rules of Procedure and initiated Reliability Standards to support reliable integration of inverter-based resources;
- Developed critical cold weather Reliability Standards and issued urgent calls to action on best practices during extreme weather;
- Identified risks to energy security and fuel assurance, and initiated related Reliability Standards projects in support of the interconnected BPS;
- Launched the Interregional Transfer Capability Study, leveraging existing work to analyze transmission constraints, in response to Congressional directive;
- Prioritized Reliability Standard activities and technical committee work under the Reliability and Security Technical Committee;
- Engaged in outreach with stakeholders to gather data in support of assessments on potential risks to security;
- Harmonized risk identification and Compliance Monitoring and Enforcement Program processing to support improved reliability and ongoing feedback loops;
- Consolidated and modernized committee structures, including the NERC Board-level Regulatory Oversight Committee and Reliability and Security Technical Committee, to support strategic leadership, execution of NERC’s mission, and prioritization of Reliability Standard and technical committee activities;
- Invested in infrastructure to increase automation and reduce enterprise risk through information technology applications;
- Refined the E-ISAC program to further enhance the electric industry’s security posture, including activities to analyze and share security data with stakeholders, coordinate incident management, communicate mitigation strategies, and work with partners to support responses to security concerns; and

⁹ The four focus areas described above and presented in NERC’s 2024 Work Plan Priorities build upon the 2019 ERO Enterprise Long Term Strategy. NERC continues to refine its Work Plan Priorities as needed.

- Revised Critical Infrastructure Protection Standards to address supply chain and virtualization risks, and evaluated risks to physical security.

These efforts demonstrate the ERO Enterprise’s ability to effectively support an adequate level of reliability of the BPS and rapidly respond to emerging reliability needs.

These past five years demonstrate that the ERO Enterprise is equipped to respond expeditiously to changing demands in the electric industry while maintaining a stable regulatory environment, even during unprecedented challenges such as the global COVID-19 pandemic. The ERO Enterprise’s maturation and cycle of continuous improvement depend upon the collaborative and critical feedback loops among NERC, the Regional Entities, the Commission, governmental authorities across North America, and industry stakeholders. NERC acknowledges these stakeholders for their vital participation in the continuous activity underway at all levels of the energy industry.

II. INTRODUCTION TO NERC AND THE ERO ENTERPRISE

NERC’s mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid. When Congress enacted the Energy Policy Act of 2005¹⁰ and section 215 of the Federal Power Act, it entrusted the Commission with: (i) approving and enforcing rules to ensure the reliability of the BPS; and (ii) certifying an ERO that would be charged with developing and enforcing mandatory Reliability Standards, subject to Commission approval, and assessing reliability and adequacy of the BPS in North America.¹¹ As reflected above, NERC accomplishes its mission with the support of the six Regional Entities. These six Regional Entities help NERC support reliability across various interconnections with differing needs and characteristics pursuant

¹⁰ Pub. L. 109–58, title XII, §1211(b), Aug. 8, 2005, 119 Stat. 946.

¹¹ Section 215(a)(2). *See also* Section 215(c) (providing the ERO certification criteria). *See also* Pub. L. 109–58, title XII, §1211(b), Aug. 8, 2005, 119 Stat. 946 (clarifying, “[t]he Electric Reliability Organization... and any regional entity delegated enforcement authority... are not departments, agencies, or instrumentalities of the United States Government.”).

to individual Regional Delegation Agreements. Under this approach, NERC and the Regional Entities play complementary roles in delivering ERO Enterprise programs, allowing the ERO Enterprise to work together collaboratively, effectively, and efficiently.

Section 215 and Commission regulation reflect certification of an ERO subject to Commission oversight. In Order No. 672, the Commission established regulations implementing section 215, including a process for periodic Performance Assessments that would examine how well the ERO is accomplishing its responsibilities.¹² In 2006, the Commission certified NERC as the ERO.¹³ The initial Performance Assessment was submitted in 2009, with subsequent assessments due on a five-year cycle. Order No. 672 also required that NERC and the Regional Entities submit a detailed annual budget and business plan filing each year for Commission approval.¹⁴ This budget process ensures that NERC equitably allocates reasonable dues, fees, and charges in accordance with section 215 and Commission regulation.¹⁵

The Commission also reviews and approves the Regional Delegation Agreements between NERC and the Regional Entities every five years.¹⁶ Since 2007, the Commission has approved revised agreements between NERC and the Regional Entities, in 2010,¹⁷ 2015,¹⁸ and 2020.¹⁹ Through oversight conducted pursuant to the agreements and Rules of Procedure, NERC evaluates Regional Entity performance and compliance with the Rules of Procedure, Commission directives,

¹² Order No. 672 at PP 183-191.

¹³ See NERC ERO Certification Order.

¹⁴ 18 C.F.R. § 39.4(b).

¹⁵ 18 C.F.R. § 39.3 (requiring ERO rules to “Allocate equitably reasonable dues, fees and charges among end users for all activities under this part....”).

¹⁶ 18 C.F.R. § 39.8. A delegation agreement shall not be effective until it is approved by the Commission.

¹⁷ *N. Am. Elec. Reliability Corp.*, 133 FERC ¶ 61,061 (2010), order denying reh’g, 134 FERC ¶ 61,179 (2011), order on compliance filing, 137 FERC ¶ 61,028 (2011).

¹⁸ *N. Am. Elec. Reliability Corp.*, 153 FERC ¶ 61,135 (2015) (approving pro forma and individual RDAs, subject to compliance filing) and *N. Am. Elec. Reliability Corp.*, Docket No. RR15-12-001 (Mar. 23, 2016) (delegated letter order) (accepting final pro forma and individual RDAs) (collectively “2015 RDA Order”).

¹⁹ Order Conditionally Approving Revised *Pro Forma* Delegation Agreement and Revised Delegation Agreements with Regional Entities, 173 FERC ¶ 61,277 (2020).

Regional Delegation Agreements, NERC policies or procedures, and guidance and direction issued by the NERC Board.

III. SATISFACTION OF STATUTORY AND REGULATORY CRITERIA FOR DELEGATION TO REGIONAL ENTITIES

Section 215(e)(4) of the FPA and Commission regulations permit the ERO to delegate its authority to one or more Regional Entities, provided that certain criteria are met,²⁰ and that the Performance Assessment include an evaluation of the Regional Entities' effectiveness.²¹ As the ERO Enterprise, NERC and the Regional Entities are committed to NERC's vision of a highly reliable and secure North American BPS. To effectuate this vision, NERC and the Regional Entities are dedicated to clear and consistent guidance across North America, working together as a team while honoring respective roles, and collaborating to innovate and share best practices.

NERC delegates authority to the Regional Entities through the Commission-approved Regional Delegation Agreements discussed in Section II. Consistent with these rules, this section of the Performance Assessment demonstrates that each of the Regional Entities has satisfied its relevant statutory and regulatory criteria. The information herein builds on the 2023 Audit Filing that submitted NERC's Appendix 4A audit reports for each of the Regional Entities. In 2025, NERC and the Regional Entities will file a request for approval of renewed Regional Delegation Agreements with additional detail regarding delegated activities.

The recent Audit Filing reflects NERC Internal Audit's observation that the Regional Entities continue to adequately perform their duties under the Rules of Procedure and Regional Delegation Agreements. Pursuant to its charter, NERC's Internal Audit program works to enhance and protect organizational value by providing risk-based and objective assurance, advice, and

²⁰ 18 C.F.R. § 39.8.

²¹ 18 C.F.R. § 39.3; *N. Am. Elec. Reliability Corp.*, Order on the Electric Reliability Organization's Three-Year Performance Assessment, 132 FERC ¶ 61,217 (2010) at P 36.

insight. NERC's Internal Audit staff adhere to the International Professional Practices framework by the Institute of Internal Auditors, which includes mandatory standards and guidance for an independent audit function. NERC's Internal Audit staff are also members of the Institute of Internal Auditors, with the attendant obligations to adhere to principles of independence and objectivity. The Director of Internal Audit reports functionally to the NERC Board Finance and Audit Committee, with direct access to the committee Chair. The Director of Internal Audit must confirm, at least annually, the organizational independence of internal audit activities. Further, audit plans are subject to approval by the committee.

As detailed in the Audit Filing, NERC's Internal Audit staff did not identify any significant instances of non-compliance, and instead found several best practices at the Regional Entities that augment NERC's CMEP practices. While the Audit Filing addressed Regional Entity implementation of the CMEP, NERC's Internal Audit staff identified an additional opportunity to improve NERC oversight to drive continuous maturation of risk-based methods, further harmonize processes, and more effectively use compliance monitoring tools. These findings are detailed in the Audit Filing and its accompanying reports incorporated by reference from Docket No. RR19-7. Based on these findings, as well as on the CMEP oversight activities detailed in Appendix B, NERC's Internal Audit concluded that the Regional Entities continue to satisfactorily perform their duties under the Rules of Procedure and the Regional Delegation Agreements.²²

Supplementing these findings under Appendix 4A of the Rules of Procedure, NERC's Internal Audit staff conducted audits between 2022-2023 of NERC's CMEP and Organization Registration and Certification Program ("ORCP") areas pursuant to Sections 406 and 506 of the

²² Compliance Filing of NERC in Response to the Order on Compliance Filings, Docket No. RR19-7-001 (June 30, 2023) at p. 2.

Rules of Procedure, respectively.²³ The CMEP and ORCP audit reports are available on NERC's website.²⁴ The audit reports document conclusions regarding effective operation of these program areas. NERC's Internal Audit staff report quarterly on the status of completed mitigation activities and on the effectiveness of mitigation activities to the Compliance and Certification Committee and the Enterprise-Wide Risk Committee.²⁵

In addition to performing their delegated functions in connection with Reliability Standards development, CMEP, and ORCP, the Regional Entities are essential to supporting Reliability Assessment efforts. Some of these efforts during the Assessment Period included seasonal Reliability Assessments, the Interregional Transfer Capability Study, the inquiries into Winter Storm Elliot and Winter Storm Uri, the Inverter-Based Resource Strategy, and lessons learned reports discussed in Section VIII, as well as ERO Enterprise-wide assessments on cross-border access to BPS facilities discussed in Section V. ERO Enterprise alignment on Reliability Assessments, as reflected in an oversight plan and the Event Analysis Process last approved by the Reliability and Security Technical Committee in September 2023, promote a structured and consistent approach to performing event analyses in North America. Through various state outreach programs, the Regional Entities also bring awareness to significant risks, themes, mitigations, and initiatives to state utility commissions, state executive offices, and legislative representatives across their respective footprints. The Regional Entities do this through targeted

²³ NERC ROP Section 406 requires an independent audit of the CMEP at least once every three years to evaluate the success and effectiveness of the program in achieving its mission. Similarly, NERC ROP Section 506 requires an independent audit of the ORCP every three years to evaluate the success, effectiveness, and consistency of the program.

²⁴ NERC Compliance Monitoring and Enforcement Program (CMEP) Audit (Jan. 12, 2023), https://www.nerc.com/gov/bot/EWRC/relateddocs/NERC_CMEP_audit_report_FINAL_011223_PR.pdf; NERC Organization Registration and Certification Program (ORCP) Audit (May 2, 2023), https://www.nerc.com/gov/bot/EWRC/relateddocs/NERC_ORCP_final_050223_PR.pdf.

²⁵ NERC also continues oversight on regional Reliability Standards development. These are few in number and reviewed on a project by project basis.

webinars on a variety of topics, participation in meetings, and one-on-one meetings with state commissions and lawmakers to provide briefings on topics of interest. The region-wide execution of ERO Enterprise technical expertise with ongoing stakeholder engagement has been referred to as the “technical undercarriage” facilitating NERC’s effective execution of its mission.

Finally, to better support independence in Regional Entity operations and as reported in the 2020 Regional Delegation Agreements filing, NERC and the Regional Entities agreed to only rely on fully independent boards or hybrid boards (comprised of independent and balanced stakeholder representatives) for governance to provide the greatest assurance of independence.²⁶ This is consistent with NERC policies, section 215, and Commission regulation requiring rules to ensure independence.²⁷ The ERO Enterprise has agreed to forgo the solely stakeholder boards, although permitted under statute, to help ensure that the ERO Enterprise is recognized as highly credible, fair, and without conflict of interest.

IV. NERC CONTINUED DEVELOPMENT OF RELIABILITY STANDARDS FOR AN ADEQUATE LEVEL OF RELIABILITY OF THE BPS AND ENHANCED ITS STANDARDS DEVELOPMENT PROCESS²⁸

As the industry risk landscape evolves, it is essential that NERC and the ERO Enterprise perform as an agile and efficient team to create value for stakeholders across risk identification,

²⁶ Section 215(c) of the FPA (where FERC permits each Regional Entity to be governed by an independent board, a balanced stakeholder board, or a combination thereof (hybrid boards)); *see also Pro Forma RDA* at Section 2(a)(i), [https://www.nerc.com/AboutNERC/RDAs/Pro%20Forma_RDA_2021_FERC_Revisions\(CLEAN\).pdf](https://www.nerc.com/AboutNERC/RDAs/Pro%20Forma_RDA_2021_FERC_Revisions(CLEAN).pdf).

²⁷ 18 C.F.R. § 39.3 (requiring the ERO to have rules to “Assure its independence of users, owners and operators....”).

²⁸ Demonstrates effort to accomplish NERC’s execution of its obligations consistent with expectations in 18 C.F.R. § 39.3(b)(1) & 2(iii-iv). *See*, 18 C.F.R. § 39.3(b) (providing, “[a]fter notice and an opportunity for public comment, the Commission may certify one such applicant as an Electric Reliability Organization, if the Commission determines such applicant:

1. Has the ability to develop and enforce, subject to § 39.7, Reliability Standards that provide for an adequate level of reliability of the Bulk-Power System, and
2. Has established rules that:....
 - (iii) Provide fair and impartial procedures for enforcement of Reliability Standards through the imposition of penalties in accordance with § 39.7, including limitations on activities, functions, operations, or other appropriate sanctions or penalties;

mitigation, and standards development processes. During the Assessment Period, NERC made considerable advances toward becoming a nimbler organization while continuing to adapt in response to the changing needs of the electric industry and the ERO Enterprise. NERC’s revisions to the Standard Processes Manual under the Rules of Procedure and prioritization of efforts ensure that NERC can timely act on issues of critical significance to industry.

A. REVISING RELIABILITY STANDARDS FOR A RELIABLE, SECURE, AND RESILIENT BPS

As the Commission-certified ERO under section 215 of the FPA, one of NERC’s primary responsibilities is to develop Reliability Standards that provide for an adequate level of reliability of the BPS.²⁹ During the Assessment Period, NERC developed several important Reliability Standards addressing various aspects of grid reliability, from cybersecurity protections to cold weather preparedness and operations. NERC also initiated projects to address issues identified through its technical committees, including multiple projects addressing reliability issues associated with the growth of IBRs, as well as through feedback loops with other NERC departments and the Regional Entities. NERC completed the Standards Efficiency Review, a broad review of Reliability Standards that began in 2017 and leveraged NERC’s multi-year experience to streamline and enhance the efficiency of the overall body of Reliability Standards. NERC also completed multiple studies examining current Reliability Standards and identifying potential improvements, including an enhanced standards development process under the Rules of Procedure. *See supra* Section IV and Appendix A.

(iv) Provide reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing Reliability Standards, and otherwise exercising its duties;”).

²⁹ 16 U.S.C. § 824o(c)(1).

During the Assessment Period, NERC developed multiple Reliability Standards projects to address cybersecurity issues, including:

- Reliability Standard CIP-008-6, to require the reporting of Cyber Security Incidents that compromise, or attempt to compromise, a responsible entity's systems (2019);
- Reliability Standard CIP-003-8, to mitigate the risk of malicious code that could result from third-party transient electronic devices for low impact BES Cyber Systems (2019);
- Reliability Standards CIP-013-2, CIP-005-7, and CIP-010-4, addressing supply chain cybersecurity risk management (2020);
- Reliability Standards CIP-004-7 and CIP-011-3, addressing third-party storage solutions for BES Cyber System Information (2021);
- Reliability Standard CIP-003-9, addressing supply chain risk management for low impact BES Cyber Systems (2022);
- Reliability Standard CIP-012-2, to mitigate risks associated with loss of availability of communications transmitted between applicable Control Centers (2024);
- Reliability Standard CIP-015-1, to require Responsible Entities to collect, analyze, and respond appropriately to anomalous suspicious network communications within applicable networks (2024); and
- Updates across multiple Reliability Standards to address the treatment of virtualization and cybersecurity (2024).

NERC also developed multiple Reliability Standards to address BPS operations and planning issues, including:

- Reliability Standard TPL-007-4, addressing planning for geomagnetic disturbance events (2020);
- Reliability Standard BAL-003-2, to refine and clarify the process and methods for calculating Frequency Reserve to support reliable operation (2019);
- Reliability Standard PRC-024-3, clarifying voltage and frequency protection settings requirements to support reliable operations (2020);
- Reliability Standards FAC-001-4 and FAC-002-4, to address the reliability impacts of changes to existing interconnected Facilities (2022);
- Reliability Standard PRC-002-4, clarifying requirements for disturbance

monitoring data collection and reporting (2023); and

- Reliability Standard PRC-023-6, addressing concerns regarding the application of requirements for out-of-step/power swing blocking relays (2023).

In addition, NERC developed a comprehensive suite of Reliability Standards to address preparedness and operations during extreme cold weather conditions, as recommended in the reports of the joint inquiry teams examining grid operations during the 2018 and 2021 winter storm events affecting Texas and the South Central United States (*see supra* Section VIII).³⁰ Two high-priority projects resulted in the following Reliability Standards:

- Reliability Standards EOP-011-2, IRO-010-4, and TOP-003-5 in 2021, Reliability Standards EOP-011-3 and EOP-012-1 in 2022;
- Reliability Standards TOP-002-5 and EOP-011-4 in 2023; and
- Reliability Standard EOP-012-2 in early 2024.

NERC expects to complete other projects initiated during the Assessment Period in 2024, including: projects to address reliability issues associated with the growth of IBRs (which will address issues identified by the Commission in Order No. 901³¹); energy considerations for operational planning and operations; and additional projects to address the effects of extreme

³⁰ See *supra* Section III.B for the August 2011 Event Report, September 2014 Event Report, July 2019 Event Report, February 2021 Event Report, and December 2022 Event Report.

³¹ Order No. 901, *Reliability Standards to Address Inverter-Based Resources*, 185 FERC ¶ 61,042 (2023) (directing the development of Reliability Standards to address reliability gaps related to inverter-based resources in three tranches, due November 2024, November 2025, and November 2026).

weather conditions (including the transmission planning standard directed by the Commission in Order No. 896³²).³³

B. GLOBAL COVID-19 PANDEMIC IMPACTS AND RESPONSE

NERC faced unprecedented challenges for a significant portion of the Assessment Period due to the global COVID-19 pandemic. While NERC made meaningful progress in identifying and addressing reliability issues through its standards development program, the global COVID-19 pandemic, along with the attendant travel restrictions and public health measures adopted by NERC and industry, required NERC to shift from in-person meetings to virtual meetings in 2020. This presented significant challenges, as NERC's standards development program has long relied on in-person meetings to gather industry drafting team members together for focused development efforts.

At the onset of the pandemic, NERC made the determination to slow standards development efforts in progress, and requested that the Commission defer implementation dates for Reliability Standards coming into effect.³⁴ These efforts were reasonable and necessary considering the unprecedented challenges and uncertainty at that time; however, slowing the pace of standards development necessarily impacted timelines across the Assessment Period. As the effects of the pandemic subsided, NERC significantly increased the number, pace, and intensity of standards development projects. This was necessary to reflect increasing challenges to BPS reliability, including a major grid transformation driven by a rapidly changing resource mix;

³² Order No. 896, *Transmission System Planning Performance Requirements for Extreme Weather*, 183 FERC ¶ 61,191 (2023).

³³ In addition to these Reliability Standards, NERC also developed or adopted multiple regional Reliability Standards and variances during the Assessment Period, as well as regional standards development process enhancements.

³⁴ See NERC, Motion to Defer Implementation of Reliability Standards and Request for Shortened Response Period and Expedited Action, Docket Nos. RM15-4-000, RM16-22-000, RM17-13-000, RD18-4-000 (Apr. 6, 2020). The Commission granted this motion on April 17, 2020. *Order Granting Deferred Implementation of Certain NERC Reliability Standards*, 171 FERC ¶ 61,052 (2020).

impacts from widespread, long duration extreme weather impacting critical infrastructure interdependencies and interconnections; and increasing security threats that continued to evolve in sophistication and frequency.

The increased volume and pace of Reliability Standards development places considerable pressure on NERC's resources, as well as those on stakeholder subject matter experts. To ensure that NERC is equipped to address these many important reliability risks in an efficient and timely manner, NERC is undertaking significant efforts to enhance all aspects of its Reliability Standards development program, from technical, committee-level initial scoping through the conclusion of the standards development process. This work is expected to continue for several years.

C. ENHANCING THE RELIABILITY STANDARDS DEVELOPMENT PROCESS

In 2022, NERC staff, working with a representative group of stakeholders, completed a broad review of all aspects of NERC's Reliability Standard development processes for opportunities to improve NERC's ability to quickly address urgent reliability needs in a nimble and agile manner. This review, initiated at the direction of NERC's Board, resulted in consensus recommendations for improvements addressing numerous aspects of the Reliability Standards development lifecycle, including recommendations for improvements to the Rules of Procedure.

During the first half of 2023, NERC developed improvements to its Rules of Procedure, including revisions to Section 300, which provides the general framework for Reliability Standards development; and the Standard Processes Manual in Appendix 3A. These enhancements streamlined NERC's standards development processes while maintaining meaningful opportunities for stakeholder engagement consistent with NERC's section 215 responsibilities. In

response to the Commission’s approval and directive in November 2023,³⁵ NERC continues to monitor implementation of these changes and may recommend further enhancements.

In addition to improvements to its Rules of Procedure, NERC initiated efforts to improve how it prioritizes Reliability Standards projects, including how NERC’s standing committees contribute to and oversee the standards process. NERC also added and reallocated internal resources to help ensure that sufficient project management, administrative, and technical staff and resources are available to support successful and timely completion of Reliability Standards development projects. NERC’s accomplishments during the Assessment Period help ensure that NERC, as the ERO, is positioned to effectively address the many challenges of the transforming grid in a nimble and agile manner, while respecting the framework for open and balanced standards development specified by Congress under section 215.

V. **HARMONIZING AND ENHANCING RISK-BASED EXECUTION OF THE COMPLIANCE MONITORING AND ENFORCEMENT (“CMEP”) PROGRAM**

The ERO Enterprise is responsible for monitoring compliance and enforcing mandatory Reliability Standards. Throughout the Assessment Period, NERC and the Regional Entities focused on harmonizing internal and external CMEP processes to promote a risk-based approach to compliance. By further harmonizing risk identification methods with its CMEP activities, NERC is also ensuring that risk-informed thinking is embedded across the risk lifecycle while providing higher value insights to stakeholders.

The ERO Enterprise commenced this shift in 2011 when it began implementing streamlined methods for disposition of minimal risk noncompliance under the initial Find, Fix, and Track (“FFT”) program. As stated in the 2023 Organization Registration and Certification Program

³⁵ *N. Am. Elec. Reliability Corp.*, 185 FERC ¶ 61,146 (Nov. 28, 2023) (approving revisions to Section 300 and Appendix 3A to the NERC Rules of Procedure and directing further reporting).

and Compliance Monitoring and Enforcement Program Annual Report (“ORCP & CMEP Annual Report”) NERC’s risk-based approach to CMEP has enabled the ERO Enterprise to focus resources on risks to the reliability and security of the BPS and risks specific to registered entities.³⁶ This section provides an overview of noteworthy activities to support an agile and effective CMEP. *See* Appendix B for additional detail.

The ORCP & CMEP Annual Reports³⁷ demonstrate that NERC matured the compliance monitoring portions of the ERO Enterprise’s risk-based CMEP through program development and enhanced oversight activities. Specifically, the ERO Enterprise focused on implementing the Align tool (as described in Section IX) to drive effectiveness and consistency in compliance monitoring and enforcement operations across the ERO Enterprise. NERC CMEP staff also provided feedback to standards development teams regarding Reliability Standards and risk-identification reflecting feedback loops between CMEP, risk identification, assessments, and Reliability Standards. For example, NERC identified the need to assess potential cross-border operation of BPS elements as a result of feedback loops between CMEP and NERC’s Event Analysis, Reliability Assessment, and Performance Analysis group and information shared by Regional Entities with NERC. In 2022, the ERO Enterprise CMEP and Registration program areas identified instances of cross-border operation or control of BPS elements. In 2023, NERC developed and issued a request for information to registered Generator Owners, Generator Operators, Transmission Owners, and Transmission Operators to better understand the extent to which non-U.S. entities might operate

³⁶ NERC, *Organization Registration and Certification Program and Compliance Monitoring and Enforcement Program Annual Report* (Feb. 2024) [hereinafter 2023 ORCP & CMEP Annual Report], <https://www.nerc.com/pa/comp/CE/ReportsDL/2023%20CMEP%20and%20ORCP%20Annual%20Report.pdf>.

³⁷ *See* 2023 ORCP & CMEP Annual Report; 2022 ORCP & CMEP Annual Report, <https://www.nerc.com/pa/comp/CE/ReportsDL/2022%20CMEP%20and%20ORCP%20Annual%20Report.pdf>; 2021 ORCP & CMEP Annual Report, <https://www.nerc.com/pa/comp/CE/ReportsDL/2021%20CMEP%20Annual%20Report.pdf>; 2020 CMEP Annual Report, <https://www.nerc.com/pa/comp/CE/ReportsDL/2020%20Annual%20CMEP%20Report.pdf> and 2019 CMEP Annual Report, [https://www.nerc.com/pa/comp/CE/ReportsDL/2019 Annual CMEP Report.pdf](https://www.nerc.com/pa/comp/CE/ReportsDL/2019%20Annual%20CMEP%20Report.pdf).

or control resources on the U.S. BPS.³⁸ NERC is currently assessing potential risks based on data provided by entities in early 2024 while Regional Entities continue to help collect data.³⁹

As detailed in Appendix A regarding standards development, CMEP and Reliability Standards feedback loops prompted the initiation of several projects, including Project 2022-05 – Modifications to CIP-008 Reporting Threshold, and Project 2023-06 – CIP-014 Risk Assessment Refinement. In addition to such standards work, feedback loops are presented through NERC’s efforts regarding Facility Ratings, which play a significant role in planning and operating the BPS. The ERO Enterprise, together with the North American Transmission Forum, developed a Facility Ratings Problem Statement in 2020. The ERO Enterprise then developed a CMEP Practice Guide. In 2021, the ERO Enterprise shared a call to action to address potential risks associated with incorrect Facility Ratings (where NERC also committed to using a risk-based approach to examine all registered entities with FAC-008 obligations). In 2023, the ERO Enterprise hosted a webinar on Facility Rating management, which highlighted facility rating issues analyzed in the *Themes and Best Practices for Sustaining Accurate Facility Ratings* report released jointly by NERC with Regional Entities in October 2022.⁴⁰ See Appendix B.

During the Assessment Period, NERC also developed enhancements to its Rules of Procedure to increase transparency regarding penalty determinations and implemented other revisions reflecting maturation of the risk-based CMEP. Additional revisions were submitted at the beginning of the Assessment Period for ORCP, including enhancements to certification processes and implementation of lessons learned on risk-based registration.⁴¹ The CMEP

³⁸ NERC is also coordinating with Canadian regulators regarding potentially assessing the extent of risk for facilities in Canada.

³⁹ See 2023 ORCP & CMEP Annual Report at pp. 1-2.

⁴⁰ *ERO Enterprise Themes and Best Practices for Sustaining Accurate Facility Ratings* (Oct. 20, 2022), <https://www.nerc.com/comm/RSTC/Documents/ERO%20Enterprise%20Themes%20and%20Best%20Practices%20for%20Sustaining%20Accurate%20FR%20-%20Final%20-%20Oct-20-22.pdf>.

⁴¹ See, e.g., *Order on Compliance Filings*, 174 FERC ¶ 61,030 (2021).

enhancements revised Section 400, Appendix 4B, and Appendix 4C of the Rules of Procedure between 2021 and 2022 to: (i) enhance transparency in penalty determinations; (ii) refine rules related to compliance monitoring; (iii) increase the efficiency of resolving minimal risk non-compliance; and (iv) otherwise make provisions easier to understand, administer, and follow.⁴² These revisions were approved by the Commission in 2022 and directly support a more agile and efficient CMEP.⁴³

Finally, in its comments in this proceeding attached as Appendix E, EEI requested that NERC further examine the use of self-certifications and spot checks to conduct compliance monitoring in lieu of full on-site audits.⁴⁴ NERC appreciates EEI's feedback. As a result of NERC oversight and Regional Entity activities throughout the Assessment Period, the ERO Enterprise confirms that it has increased its use of self-certifications and spot checks to support compliance monitoring, and intends to continue to significantly leverage those methods. For example, during the first quarter of 2024, approximately 85% of all compliance monitoring engagements leveraged self-certifications (77%) and spot checks (8%), whereas only 15% compliance monitoring entailed full on-site audits. NERC strives for consistency when engaging in ERO Enterprise-wide compliance monitoring using this risk-based approach, while recognizing that specific circumstances or regions may present different risks that inform the appropriate choice of monitoring tool. NERC will continue coordinating across the ERO Enterprise to support consistent rationale in tool selection through its risk-based approach to CMEP.

⁴² *Petition of NERC and the Regional Entities for Approval of Revisions to the NERC Rules of Procedure*, Docket No. RR21-10-000 (Sept. 29, 2021); *Compliance Filing of NERC in Response to the Order on the Rules of Procedure Revisions to the Compliance Monitoring and Enforcement Program*, Docket No. RR21-10-000 (July 18, 2022).

⁴³ *Order Approving in Part and Denying in Part Revisions to NERC Rules of Procedure*, 179 FERC ¶ 61,129 (May 19, 2022); *N. Am. Elec. Reliability Corp.*, Docket No. RR21-10-001 (Sept. 9, 2022).

⁴⁴ No other comments were submitted on NERC's posted draft Performance Assessment.

VI. REFINING THE ELECTRICITY INFORMATION SHARING AND ANALYSIS CENTER (“E-ISAC”) PROGRAM TO ENHANCE THE ELECTRIC INDUSTRY’S SECURITY POSTURE⁴⁵

During the Assessment Period, NERC executed and enhanced several initiatives to target cyber and physical security risks across the ERO Enterprise. Through its focus on security, NERC zeroed in on structural cybersecurity challenges to ERO Enterprise and Registered Entity operations, including the supply chain, and Information Technology (“IT”) and Operational Technology (“OT”) system monitoring, and how each of these areas inform grid planning and design. NERC developed the E-ISAC’s activities and ERO Enterprise collaboration to foster cyber- and physical security-informed reporting and reduce exposure of critical facilities. The E-ISAC continues to play a vital role in securing the BPS through sharing information on cyber and physical security threats and vulnerabilities with industry members, the vendor community, and government and cross-sector partners. The E-ISAC also regularly briefs FERC, NERC, Regional Entity, state utility commission, and Canadian governmental authority staff on unattributed cyber and physical security risks to help inform ERO Enterprise program areas, including the development of NERC’s Critical Infrastructure Protection (“CIP”) Reliability Standards. During the Assessment Period, NERC also continued to update the CIP Reliability Standards to address risks emerging from the transforming grid landscape, including supply chain threats and internal

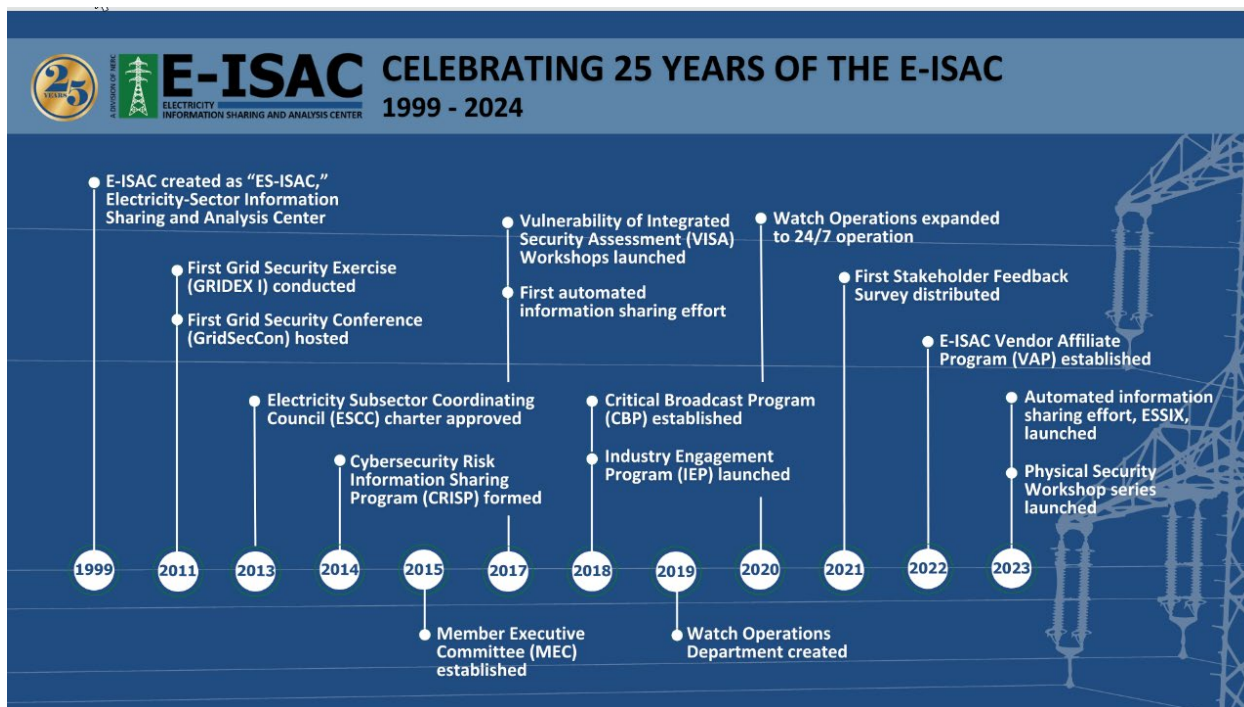
⁴⁵ Demonstrates effort to accomplish NERC’s execution of its obligations consistent with expectations in 18 C.F.R. § 39.3(b)(1) & 2(iii-iv). *See* 18 C.F.R. § 39.3(b) (providing “[a]fter notice and an opportunity for public comment, the Commission may certify one such applicant as an Electric Reliability Organization, if the Commission determines such applicant:

1. Has the ability to develop and enforce, subject to § 39.7, Reliability Standards that provide for an adequate level of reliability of the Bulk-Power System, and
2. Has established rules that:
 - (iii) Provide fair and impartial procedures for enforcement of Reliability Standards through the imposition of penalties in accordance with § 39.7, including limitations on activities, functions, operations, or other appropriate sanctions or penalties;
 - (iv) Provide reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing Reliability Standards, and otherwise exercising its duties;”).

network security monitoring risks. With these efforts, NERC is actively assessing and managing cyber and physical security risks to the BPS against the backdrop of a dynamic and complex threat landscape.

NERC maintains a strong, industry-informed cyber and physical security posture through the E-ISAC. The E-ISAC serves as a centralized information center that gathers and analyzes security data, shares threat intelligence, helps coordinate incident management, and communicates mitigation strategies with stakeholders.⁴⁶ Sharing security information with and by the E-ISAC leads to a more secure grid with greater knowledge across all levels of risk. In collaboration with the Department of Energy (“DOE”), the Electricity Subsector Coordinating Council (“ESCC”), and other government and industry partners, the E-ISAC serves as the primary security communications channel for the electric industry. The following diagram illustrates the 25-year history of the E-ISAC’s support of security in coordination with governmental authorities and stakeholders throughout the energy industry.

⁴⁶ Electricity Information Sharing and Analysis Center web site, <https://www.nerc.com/pa/CI/ESISAC/Pages/default.aspx>.



Additional detail on specific programmatic activities and E-ISAC information sharing is included in Appendix C.

As discussed in previous Performance Assessments and detailed in Appendix C, the E-ISAC provides its member utilities and partners with resources to prepare for and reduce cyber and physical security threats to the North American electricity industry. NERC has long recognized the importance of promoting robust information sharing between the E-ISAC and electricity industry participants to enhance the industry’s situational awareness and ability to prepare for and respond to cyber and physical security threats, vulnerabilities, and incidents. The E-ISAC meets regularly with NERC staff on projects, including inverter-based resources, emerging technologies like artificial intelligence and cloud computing, and cyber-informed transmission planning, to advise on emerging security issues. The E-ISAC also meets quarterly with Commission staff to share threats, metrics, and programmatic updates. In addition, the E-ISAC engages in voluntary information sharing; a “weekly wrap up” summary of internal postings,

critical vulnerabilities, and dark web and criminal forum threats, shared on a real-time basis to the E-ISAC member and partner portal; and aggregated/anonymized monthly threat briefings for NERC Reliability Standards personnel, ERO Enterprise CMEP personnel, and state and provincial regulators. The E-ISAC also continues to host Industry Engagement Program sessions, which bring together E-ISAC members and partners for small, interactive discussions on E-ISAC information sharing processes, products, programs, and people. In addition, the E-ISAC holds its annual grid security conference, known as GridSecCon and its biennial grid security exercise, known as GridEx, each of which are discussed in detail in Appendix C. The E-ISAC executed these activities throughout the Assessment Period, notwithstanding the intervening global COVID-19 pandemic, the SolarWinds supply chain attack, and the emergence of Chinese state-sponsored cyber actor (e.g., Volt Typhoon) campaigns in the sector.

To further enhance cross-sector interdependencies in the energy industry, in 2022 the E-ISAC also joined the DOE's Energy Threat Analysis Center ("ETAC") pilot, a new venue that reviews and exchanges intelligence and shares information within the energy sector. Through the DOE's ETAC, the E-ISAC provides industry context to U.S. government partners and shares regular updates from the Cybersecurity Risk Information Sharing Program ("CRISP"). The E-ISAC's capabilities for real-time threat identification, mitigation, and analysis are demonstrated by its coordination with industry and government partners to address significant and global security threats to the energy sector, including the ongoing Russia-Ukraine conflict, increasing prevalence of Volt Typhoon reconnaissance, and attempted prepositioning in U.S. critical infrastructure.

Regarding physical security incidents to industry, starting in September 2022 and continuing into 2023, a steady increase in grid-impacting physical security incidents occurred at

substations in the Pacific Northwest and Southeast regions of the United States. While these incidents did not impact the BPS, local power disruption did occur. The E-ISAC alerted industry and government partners of increasing activity in the months leading up to the events in November and December of 2022, released all-points bulletins alerting E-ISAC Portal users about ongoing attacks, and coordinated a webinar in December 2022. The E-ISAC also coordinated with industry and government partners to host a series of physical security workshops focused on the threats to industry, as well as protective measures organizations could implement. The E-ISAC also worked with the Multi-State/Elections Infrastructure ISAC and the Cybersecurity & Infrastructure Security Agency (“CISA”) to support the security posture of the 2020, 2022, and 2024 election cycles. Regional Entity outreach in further support of these efforts helped spread the message of physical security to additional industry and state/local government participants.

In addition, the E-ISAC continued to maintain its critical role during the global COVID-19 pandemic which occurred primarily in the second and third year of the Assessment Period. In March 2020, the E-ISAC issued an operations summary informing the public that it was maintaining full staffing and remaining fully engaged with industry’s response to the pandemic. Early in the pandemic, in February 2021, the E-ISAC issued an all-points bulletin through its Critical Broadcast Program. This bulletin highlighted the emerging risks of a pandemic, addressed potential supply chain issues that would result from a manufacturing slowdown in Asia, alerted entities to the possibility of impending workforce constraints, and recommended that entities review their supply chain risk and business continuity plans. The E-ISAC’s role is increasingly valuable as the transitioning grid faces heightened cyber and physical security risks driven by supply chain vulnerabilities and an evolving geopolitical threat landscape. As detailed in the 2023

E-ISAC End-of-Year Report, the E-ISAC worked with its nearly 1,800 member and partner organizations to ensure that the electric industry maintains tools to stay ahead of challenges.⁴⁷

VII. MODERNIZING COMMITTEE STRUCTURES FOR EFFECTIVENESS AND EFFICIENCY⁴⁸

Throughout the Assessment Period, NERC positioned itself to address the unprecedented transformation in the grid and corresponding changes in the resource mix by streamlining several internal committees responsible for guiding risk analysis, assessments, and recommendations. This restructuring directly impacts performance for both NERC and the ERO Enterprise, driving tangible efforts while ensuring the focus remains on effectively and efficiently reducing risks to the reliability of the BPS.

A. REGULATORY OVERSIGHT COMMITTEE (“ROC”)

Recognizing the volume and complexity of Reliability Standards-related projects and the need for greater focus and oversight in this area, the NERC Board reorganized its governance structure to resume committee-level oversight of standards development when it introduced the

⁴⁷ E-ISAC, 2023 E-ISAC End-of-Year Report (2023), <https://nerc123.my.salesforce.com/sfc/p/#2E0000012tgy/a/Pm000000Mfir/nZtc69DSjM7r2UMKlqL8OAoeIPRDxzbu0IAawu9VaCs>.

⁴⁸ Demonstrates effort to accomplish NERC’s execution of its obligations consistent with expectations in 18 C.F.R. § 39.3(a) & (b)(2)(i-iv). 18 C.F.R. § 39.3(b) (providing, “[a]fter notice and an opportunity for public comment, the Commission may certify one such applicant as an Electric Reliability Organization, if the Commission determines such applicant:

1. Has the ability to develop and enforce, subject to § 39.7, Reliability Standards that provide for an adequate level of reliability of the Bulk-Power System, and
2. Has established rules that:
 - (i) Assure its independence of users, owners and operators of the Bulk-Power System while assuring fair stakeholder representation in the selection of its directors and balanced decision-making in any Electric Reliability Organization committee or subordinate organizational structure;
 - (ii) Allocate equitably reasonable dues, fees and charges among end users for all activities under this part;
 - (iii) Provide fair and impartial procedures for enforcement of Reliability Standards through the imposition of penalties in accordance with § 39.7, including limitations on activities, functions, operations, or other appropriate sanctions or penalties;
 - (iv) Provide reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing Reliability Standards, and otherwise exercising its duties;....”).

Regulatory Oversight Committee in 2023.⁴⁹ The committee’s predecessor, the Compliance Committee, previously served as an oversight and adjudicatory body for appeals related to the CMEP and the ORCP. The Regulatory Oversight Committee provides the NERC Board with an enhanced oversight of NERC’s core regulatory processes along the entire continuum of activities, from standards development to registration, and through compliance and enforcement actions.

B. ESTABLISHING THE RELIABILITY AND SECURITY TECHNICAL COMMITTEE (“RSTC”) AND FOSTERING STANDING COMMITTEE COORDINATION

In 2020, NERC restructured several technical committees into one Reliability and Security Technical Committee (“RSTC”), a standing committee that advances reliability, resilience, and security by serving as a proactive forum for aggregating ideas, leveraging industry expertise, and prioritizing deliverables to target potential risks (including Standard Authorization Requests, Reliability Guidelines, Security Guidelines, technical reference documents, and white papers).⁵⁰ The RSTC’s predecessors—the Operating, Planning, and Critical Infrastructure Protection Committees⁵¹—were three distinct committees that each provided participatory technical input on various aspects of reliability and security of the North American BPS. The RSTC works closely with the Reliability Issues Steering Committee (“RISC”) and the informal Standing Committees Coordinating Group (“SCCG”) to identify and communicate reliability risks and mitigation strategies to the ERO Enterprise and industry stakeholders.

⁴⁹ See NERC Compliance Committee, *Open Meeting Minutes* (Aug. 16, 2023), <https://www.nerc.com/gov/bot/BOTCC/Compliance%20Committee%202013/Compliance%20Committee%20Open%20Meeting%20Minutes%20-%20August%2016,%202023.pdf>.

⁵⁰ Available on the NERC website at <https://www.nerc.com/comm/Pages/Reliability-and-Security-Guidelines.aspx>.

⁵¹ See archived webpages for the Operating Committee, <https://www.nerc.com/comm/OC/Pages/default.aspx>; and Planning Committee, <https://www.nerc.com/comm/PC/Pages/default.aspx> (subsumed within the RSTC).

Among its activities, the RSTC originates Standard Authorization Requests based on information in the feedback loop discussed above.⁵² The RSTC and its subgroups also develop white papers documenting technical concepts, technical terms, and defined methods or approaches to handle a particular issue. Further, the RSTC develops non-mandatory Reliability and Security Guidelines that recommend approaches or behaviors to address how to accomplish certain reliability objectives. For example, in 2023 the RSTC developed the Reliability Guideline *Generating Unit Winter Weather Readiness*. NERC's 2020 compliance filing in Docket No. RR19-7 explained the use of guidelines as one of NERC's tools for a risk-based approach to reliability. As detailed in that filing, NERC reviews guidelines every three years to confirm their continued effectiveness and validity. During the Assessment Period, NERC and the RSTC also incorporated metrics into each Reliability Guideline to support the triennial evaluation process.⁵³

Each year the RSTC publishes a strategic plan that presents its goals and functions to identify, prioritize, and assure effective and efficient mitigation of risks.⁵⁴ The RSTC is currently examining protection system misoperations, mitigating loss of emergency management systems, issues with IBR performance, increasing use of distributed energy resources, weather-related outages, energy adequacy, and the operations and planning aspects of cybersecurity. To support such prioritization, the RSTC coordinates with other standing committees under the SCCG.

⁵² The RSTC was formed from a combination of the prior Operating Committee, Planning Committee, and Critical Infrastructure Protection Committee. *See* RSTC Charter, https://www.nerc.com/comm/RSTC/RelatedFiles/RSTC_Charter_Feb2024.pdf; RSTC Website, <https://www.nerc.com/comm/RSTC/Pages/default.aspx>; *see also* NERC, Board of Trustees Meeting Minutes, Agenda Item 6d (Reliability and Security Technical Committee Charter, Chair and Vice Chair Appointments) (Nov. 5, 2019), https://www.nerc.com/gov/bot/Agenda%20highlights%20and%20Mintues%202013/FINAL_Minutes_BOT_Open_Meeting_Nov-5-2019.pdf, and NERC Board of Trustees Meeting Minutes (Feb. 6, 2020), https://www.nerc.com/gov/bot/Agenda%20highlights%20and%20Mintues%202013/FINAL_Minutes_BOT_Open_Meeting_February_2020.pdf.

⁵³ Certain guidelines were also retired or converted to technical reference documents.

⁵⁴ NERC RSTC, 2024-2025 Strategic Plan (Jan. 2024), https://www.nerc.com/comm/RSTC/Documents/RSTC_Strategic_Plan_2024.pdf.

Under the SCCG, the chairs and vice-chairs of NERC’s standing committees (the RSTC, Standards Committee, Compliance and Certification Committee, RISC, and Personnel Certification Governance Committee) meet to discuss cross-cutting initiatives to address risks to the BPS. The SCCG’s activities enhance the transparency, efficiency, and effectiveness of NERC’s standing committee work by ensuring that communication and coordination occurs on a regular basis. To support feedback loops, standing committee agendas also include quarterly updates on SCCG discussion.

VIII. OTHER ACTIVITIES TACKLING THE RELIABILITY AND RESILIENCE CHALLENGES OF GRID TRANSFORMATION AND EXTREME WEATHER⁵⁵

As stated in the 2023 ERO Reliability Risk Priorities Report,⁵⁶ the electric industry is facing present and emerging risk from five areas: energy policy; grid transformation; resilience to extreme events; security risks; and critical infrastructure interdependencies. Further, in its 2023 Long-Term Reliability Assessment, NERC explained:

The North American BPS is on the cusp of large-scale growth, bringing reliability challenges and opportunities to a grid that was already amid unprecedented change. Key measures of transmission development and future electricity peak demand and energy needs, which NERC tracks and reports annually in the LTRA, are rising faster than at any time in the past five or more years. New resource projects continue to enter the interconnection planning process at a faster rate than existing projects are concluded; this

⁵⁵ Demonstrates effort to accomplish NERC’s execution of its obligations consistent with expectations in 18 C.F.R. § 39.3(b)(1) & 2(iii-iv). *See*, 18 C.F.R. § 39.3(b) (providing, “[a]fter notice and an opportunity for public comment, the Commission may certify one such applicant as an Electric Reliability Organization, if the Commission determines such applicant:

1. Has the ability to develop and enforce, subject to § 39.7, Reliability Standards that provide for an adequate level of reliability of the Bulk-Power System, and
2. Has established rules that:
 - (iii) Provide fair and impartial procedures for enforcement of Reliability Standards through the imposition of penalties in accordance with § 39.7, including limitations on activities, functions, operations, or other appropriate sanctions or penalties;
 - (iv) Provide reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing Reliability Standards, and otherwise exercising its duties;”).

⁵⁶ NERC, 2023 ERO Reliability Risk Priorities Report (Aug. 17, 2023), [https://www.nerc.com/comm/RISC/Related Files DL/RISC ERO Priorities Report 2023 Board Approved Aug 17 2023.pdf](https://www.nerc.com/comm/RISC/Related%20Files/DL/RISC%20ERO%20Priorities%20Report%202023%20Board%20Approved%20Aug%2017%202023.pdf).

increases the backlog of resource additions and prompts some Regional Transmission Organizations (RTO) and Independent System Operators (ISO) to adapt their processes to manage expansion. Industry faces mounting pressures to keep pace with accelerating electricity demand, energy needs, and transmission system adequacy as the resource mix transitions.⁵⁷

During the Assessment Period, NERC executed various initiatives to target such challenges. Examples of these activities include NERC’s inverter-based resource strategy, extreme weather preparedness efforts, activities to address energy assurance, launching the interregional transfer capability study, and improvements to regulatory programs and committee administration. This section provides details on NERC’s achievements to tackle pressing issues associated with grid transformation and extreme weather.

A. EXECUTING THE INVERTER BASED RESOURCE (“IBR”) STRATEGY

NERC designed and deployed the IBR Strategy to support reliable integration of IBRs into the grid.⁵⁸ Under this strategy, the ERO Enterprise executed activities in four areas:

- (i) risk analysis, including event analysis, disturbance reports, alerts, and lessons learned;
- (ii) interconnection process improvements, including enhanced interconnection requirements and modeling and study improvements;
- (iii) best practices and industry education, including Reliability Guidelines, webinars/workshops, outreach and engagements, and emerging reliability risk issues; and
- (iv) regulatory enhancements, including Reliability Standards projects, review of Rules of Procedure, inverter-specific requirements/standards, and risk-based compliance.⁵⁹

⁵⁷ NERC, 2023 Long-Term Reliability Assessment (Dec. 2023) at p 6, https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2023.pdf (citation omitted).

⁵⁸ NERC, Inverter-Based Resource Strategy (June 2022) [hereinafter IBR Strategy], https://www.nerc.com/comm/Documents/NERC_IBR_Strategy.pdf; NERC, Quick Reference Guide: IBR Registration Initiative (May 2024) [hereinafter IBR Quick Reference Guide], https://www.nerc.com/pa/Documents/IBR_Quick%20Reference%20Guide.pdf.

⁵⁹ In addition to IBRs, NERC is proactively working to identify BPS reliability risks associated with the increasing distributed energy resource (“DER”) levels and to identify strategic actions necessary to ensure reliable operation of the BPS. *See* NERC, Distributed Energy Resource Strategy (Nov. 2022), https://www.nerc.com/comm/RSTC/Documents/NERC_DER%20Strategy_2022.pdf; NERC, Quick Reference Guide: Distributed Energy Resource Activities (Feb. 2024) https://www.nerc.com/pa/Documents/DER_Quick%20Reference%20Guide.pdf.

These activities were completed in furtherance of the openness and balance of interests mandated of NERC under 18 C.F.R. § 39.3(b)(2)(iv) in executing its duties.

In support of this IBR Strategy, NERC (1) coordinated with the Regional Entities to analyze and report disturbance events related to IBRs;⁶⁰ (2) issued IBR-focused NERC Alerts;⁶¹ (3) issued two technical reports on IBR modeling and base cases;⁶² (4) issued Reliability Guidelines regarding collection and performance of non-synchronous generating facility data as part of RSTC workstreams;⁶³ and (5) published white papers describing the need to address IBRs under Reliability Standards.⁶⁴ The Regional Entities also provided training on the evolving power grid in relation to IBRs, including webinars addressing challenges and solutions to IBR growth. Regional Entities also published articles and “best practices” guidance for industry within their footprints.

Stakeholders were a crucial part of these efforts under the Inverter-Based Resource Performance Task Force, which transitioned to a subcommittee in 2022 and continues to be a subgroup of the Reliability and Security Technical Committee (“RSTC”).⁶⁵ Work by RSTC subgroups and NERC staff builds upon experiences and lessons learned as analyzed by the ERO

⁶⁰ See NERC IBR Quick Reference Guide at pp. 4-6.

⁶¹ See, e.g., NERC, Industry Recommendation: Loss of Solar Resources during Transmission Disturbances due to Inverter Settings - II (May 2018), https://www.nerc.com/pa/rm/bpsa/Alerts%20DL/NERC_Alert_Loss_of_Solar_Resources_during_Transmission_Disturbance-II_2018.pdf.

⁶² NERC, Technical Report: BPS-Connected Inverter-Based Resource Modeling and Studies (May 2020), https://www.nerc.com/comm/PC/InverterBased%20Resource%20Performance%20Task%20Force%20IRPT/IRPTF_IBR_Modeling_and_Studies_Report.pdf; NERC and WECC, WECC Base Case Review: Inverter-Based Resources (Aug. 2020), https://www.nerc.com/comm/PC/InverterBased%20Resource%20Performance%20Task%20Force%20IRPT/NERC-WECC_2020_IBR_Modeling_Report.pdf.

⁶³ See NERC IBR Performance Guideline; NERC IBR Interconnection Requirements Guideline on Reliability Guideline Website, <https://www.nerc.com/comm/Pages/Reliability-and-Security-Guidelines.aspx>.

⁶⁴ NERC, IRPTF Review of NERC Reliability Standards (Mar. 2020), https://www.nerc.com/comm/PC/InverterBased%20Resource%20Performance%20Task%20Force%20IRPT/Review_of_NERC_Reliability_Standards_White_Paper.pdf; NERC, Odessa Disturbance Follow-Up (Oct. 2021), https://www.nerc.com/comm/RSTC_Reliability_Guidelines/White_Paper_Odessa_Disturbance_Follow-Up.pdf.

⁶⁵ NERC Inverter-Based Resource Performance Working Group (“IRPWG”) website, <https://www.nerc.com/comm/RSTC/Pages/IRPWG.aspx>.

Enterprise and stakeholders to provide recommendations on the performance characteristics. These groups developed technical materials to support the utility industry, Generator Owners, and equipment manufacturers. For example, NERC included these recommendations in white papers, Reliability Guidelines, and Standard Authorization Requests (including to require electromagnetic transient modeling for IBR integration, now Project 2022-04 EMT Modeling).⁶⁶ The ERO Enterprise also supported the Commission’s modernization of its generator interconnection procedures and agreements,⁶⁷ and stressed the opportunity to address matters such as electromagnetic transient modeling and data validation.⁶⁸ At the RSTC meeting in September 2022, NERC staff discussed ERO Enterprise research and analysis to proactively address the potential reliability gap associated with BPS-connected IBRs that are not connected to the Bulk Electric System (“BES”) and therefore not yet subject to existing Reliability Standards.

Finally, NERC acted on two sets of Commission directives to modify NERC’s Registry Criteria under the Rules of Procedure and modify Reliability Standards to address IBRs. First, in November 2022, the Commission directed NERC to file a three-phase work plan to revise its rules and identify and register owners and operators of non-BES IBRs that in aggregate materially impact reliability of the BPS.⁶⁹ This order cited and leveraged many of the above-mentioned activities by NERC to support the directive. Between 2022 and 2024, NERC revised its Rules of Procedure to establish a new category of Generator Owners and Generator Operators with materially impactful non-BES IBRs. These proposed revisions were approved by the Commission

⁶⁶ See, e.g., NERC, IRPTF White Papers, Technical Reports, and Assessments, <https://www.nerc.com/comm/PC/Pages/Inverter-Based-Resource-Performance-Task-Force.aspx>.

⁶⁷ *Improvements to Generator Interconnection Procedures and Agreements*, Notice of Proposed Rulemaking, 179 FERC ¶ 61,194 (2022).

⁶⁸ See Comments of NERC, et al., Docket No. RM22-14-000 (Oct. 13, 2022).

⁶⁹ *Registration of Inverter-Based Resources*, 181 FERC ¶ 61,124 at P 20 (2022).

on June 27, 2024 in Docket No. RR24-2, subject to a compliance filing on whether the new criteria will include battery storage resources, fuel cells, and other IBR technologies.

In October 2023, the Commission issued Order No. 901 directing NERC to develop new or revised Reliability Standards to address four sets of IBR-related reliability issues on a three-year, staggered timeframe. These new or revised Reliability Standards should include provisions related to data sharing, model validation, planning and operational studies, and performance requirements. The Commission also directed that NERC should, to a reasonable extent, prioritize the development of IBR-related standards projects.⁷⁰ NERC submitted an informational filing in January 2024 in accordance with Order No. 901, explaining how it will respond to the Commission's directives, and including a timeline for Reliability Standards filings in 2024, 2025, and 2026.⁷¹ Concurrently, NERC is also developing key technical definitions for use in these and future IBR-related standards.⁷²

B. EXECUTING A RESPONSE TO PREPARE FOR EXTREME WEATHER

NERC coordinated with industry stakeholders to prepare for and mitigate potential impacts of significant weather events. NERC followed a comprehensive approach, which included: publication of assessments; follow-up on recommendations from reports examining grid operations during recent winter storm events; issuing guidelines on cold weather preparedness; developing mandatory cold weather Reliability Standards; NERC Alerts; and industry webinars.

Early in the Assessment Period, NERC coordinated with Commission and Regional Entity staff to examine the causes of three winter storm events resulting in reliability impacts. In 2019,

⁷⁰ *Reliability Standards to Address Inverter-Based Resources*, Order No. 901, 185 FERC ¶ 61,042 (2023) [hereinafter Order No. 901] at PP 53-55.

⁷¹ Informational Filing of NERC Regarding the Development of Reliability Standards Responsive to Order No. 901, Docket No. RM22-12-000 (Jan. 17, 2024).

⁷² *Id.* at p. 6.

the Commission, NERC, and Regional Entity staff issued a report regarding the cold weather event which led to a combination of energy emergency and wide-area constrained conditions across a large area of the south central region of the United States in January of 2018.⁷³ The 2021 report of the Commission, NERC, and Regional Entity staff joint inquiry team (“February 2021 Event Report”) examined the reliability impacts of Winter Storm Uri, the February 2021 storm that resulted in major reliability impacts and caused millions to lose power in Texas and the south central United States.⁷⁴ In 2023, a second team issued a report examining grid operations during Winter Storm Elliott, the December 2022 storm which contributed to power outages for millions of customers in the eastern half of the United States (“December 2022 Event Report”).⁷⁵ The December 2022 Event Report stressed the need for improvements to Cold Weather Reliability Standards consistent with the February 2021 Event Report findings, and recommended improvements for natural gas infrastructure in the United States.

As described in these reports, extreme cold weather conditions can have substantial impacts on BPS reliability. Extreme cold weather was a major factor in reliability events in 2011,⁷⁶ 2014,⁷⁷

⁷³ See, 2019 FERC and NERC Staff Report: The South Central United States Cold Weather Bulk Electric System Event of January 17, 2018 [hereinafter January 2018 Event Report], https://www.nerc.com/pa/rm/ea/Documents/South_Central_Cold_Weather_Event_FERC-NERC-Report_20190718.pdf.

⁷⁴ See FERC, NERC, and Regional Entity Staff, *The February 2021 Cold Weather Outages in Texas and the South Central United States*, 19 (Nov. 16, 2021) [hereinafter February 2021 Event Report], <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and>.

⁷⁵ See FERC, NERC, and Regional Entity Staff, *Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliot*, (Oct. 2023) [hereinafter December 2022 Event Report], <https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022>.

⁷⁶ See FERC and NERC, *Report on Outages and Curtailments During the Southwest Cold Weather Event of February 1-5, 2011*, (Aug. 2011) [hereinafter August 2011 Event Report], <https://www.ferc.gov/sites/default/files/2020-04/08-16-11-report.pdf>.

⁷⁷ See NERC, *Polar Vortex Review* (Sept. 2014) [hereinafter September 2014 Event Report], https://www.nerc.com/pa/rm/January_2014_Polar_Vortex_Review/Polar_Vortex_Review_29_Sept_2014_Final.pdf.

2018,⁷⁸ 2021,⁷⁹ and 2022.⁸⁰ Winter Storm Uri in 2021 proved exceptionally severe. Conditions resulted in emergencies in three Reliability Coordinator footprints in the south central United States and required firm load shed to maintain system reliability. In the Electric Reliability Council of Texas (“ERCOT”) Interconnection, system conditions deteriorated significantly due to the high number of generator outages combined with high customer demand. System operators in ERCOT and other neighboring areas ordered what ultimately became the largest controlled firm load shed event in United States history. The resulting power outages, combined with the historically cold temperatures, resulted in significant human and economic impacts, including loss of life. The 2021 event, like its predecessors, had two main causes. First, generating units, unprepared for cold weather, failed in large numbers. Second, declines in natural gas production led to supply issues, which were exacerbated by the grid’s increasing reliance on natural gas-fired generation. As highlighted in NERC reliability assessments, the rapid transformation of the grid, including the increasing reliance on variable generation and “just in time” natural gas deliveries, has produced a generation resource mix that is more sensitive to extreme temperature conditions, as well as widespread extreme weather and environmental conditions. This trend was observed in the December 2022 Event Report and underscored the need for a robust and comprehensive suite of Reliability Standards to address the potential implications for reliability. It also informed NERC activities in favor of stronger energy assurance (discussed *infra* in Section C).

Throughout the Assessment Period, NERC prioritized the development of cold weather Reliability Standards. In 2021, NERC took an important first step through development of Reliability Standards EOP-011-2 (Emergency Preparedness and Operations), IRO-010-4

⁷⁸ See January 2018 Event Report.

⁷⁹ See February 2021 Event Report.

⁸⁰ See December 2022 Event Report.

(Reliability Coordinator Data Specification and Collection), and TOP-003-5 (Operational Reliability Data). These Reliability Standards became effective in the United States on April 1, 2023 and are advancing reliability by: (i) improving generator readiness for cold weather conditions; and (ii) enhancing awareness of factors that could limit generating unit availability by the entities responsible for the reliable operation of the grid.

In 2022, NERC developed a second set of cold weather Reliability Standards which address recommendations from the joint inquiry team in the February 2021 Event Report: EOP-012-1 (Extreme Cold Weather Preparedness and Operations) and EOP-011-3 (Emergency Operations). Reliability Standards EOP-012-1 and EOP-011-3 contain new and enhanced operations and generator cold weather preparedness requirements and complement the improved information sharing requirements in Reliability Standards TOP-003-5 and IRO-010-4. The Commission approved Reliability Standards EOP-012-1 and EOP-011-3 in February 2023, with directives to submit further modifications and the implementation plan by February 2024. Reliability Standard EOP-012-1 will become effective in the United States on October 1, 2024.

On October 30, 2023, NERC filed further updates to Reliability Standards EOP-011-4 and TOP-002-5 (Operations Planning) to address natural gas fuel issues that the joint inquiry team identified as the second largest cause of generation outages during Winter Storm Uri. Reliability Standards EOP-011-4 and TOP-002-5 were approved by the Commission on February 15, 2024. Looking forward, NERC will initiate a Section 1600 data collection and analysis of the EOP-012 standard, consistent with NERC's February 2024 compliance filing in Docket No. RD23-1.

Together with its Cold Weather Reliability Standards, NERC also engaged in the following outreach efforts to improve cold weather preparedness:

- NERC Alerts: In May 2023, NERC issued its first ever Level 3 Alert under the Rules of Procedure containing essential actions addressing cold weather

preparedness for extreme weather events. This Level 3 Alert is the third NERC alert issued in the last three years with specific actions for winter weather preparedness; the first two being Level 2 (advisory) alerts in 2021 and 2022.⁸¹

- Webinars and Outreach: NERC hosted a webinar on winter weather preparedness for severe cold weather on September 7, 2023.⁸² The Regional Entities also continue to host workshops and similar outreach programs, including winter preparedness and performance webinars, pre-winter site visits and walkdowns, and facilitating discussion between entities through regional stakeholder committees.
- Small Group Advisory Sessions: NERC hosted several small group advisory sessions in 2023 to support entities in achieving compliance with the first series of cold weather Reliability Standards that became effective on April 1, 2023.
- Reliability Guidelines: In June 2023, NERC issued the Reliability Guideline: Generating Unit Winter Weather Readiness – Current Industry Practices. This guideline provides a general framework for developing an effective winter weather readiness program for generating units across North America.⁸³

While full evaluation is pending, experiences during the 2023-2024 winter season indicate that these activities are generating positive impacts on cold weather preparedness. During January/February 2024, storms moved across North America, and cold persisted across the Canadian prairie in Alberta, the Pacific Northwest and Intermountain West, and the Central Great Plains before drifting southeast. Prior to the 2023-2024 winter season, NERC issued public statements and conducted outreach, including to Reliability Coordinators and Regional Entities, to support robust preparedness and response. With some challenges still noted, the 2023-2024 winter season passed without any major cold weather-related incidents, indicating that efforts are improving reliability and resilience even at this early stage. NERC, Regional Entity, and

⁸¹ More information on NERC alerts, including the Level 3 Alert Essential Actions to Industry: Cold Weather Preparations for Extreme Weather Events III, is available on the NERC web page at <https://www.nerc.com/pa/rrm/bpsa/Pages/Alerts.aspx>.

⁸² NERC, Preparation for Cold Weather Webinar, Sep. 7, 2023, materials available at <https://www.nerc.com/pa/rrm/Pages/Webinars.aspx>.

⁸³ NERC, Reliability Guideline: Generating Unit Winter Weather Readiness – Current Industry Practices – Version 4 (June 2023), https://www.nerc.com/comm/RSTC_Reliability_Guidelines/Reliability_Guideline_Generating_Unit_Winter_Weather_Readiness_v4.pdf.

Commission staff are jointly reviewing and documenting performance during winter storms Heather and Gerri. As NERC enters the next Assessment Period, cold weather preparedness will remain a high priority.

C. EXECUTING A STRATEGY FOR ENERGY ASSURANCE UNDER AN INTERCONNECTED BPS

During the Assessment Period, NERC targeted improvements to energy assurance issues raised by extreme weather events concurrent with the growing reliance on natural gas resources and weather-dependent variable energy resources. For NERC, energy assurance means proactively taking steps to maintain reliable BPS performance during both normal operations and credible contingency events while considering the impact of transmission, fuel assurance, emissions, and capacity analyses. NERC's focus on energy assurance seeks to shift operations and planning focus beyond capacity adequacy (the maximum level of electric power that plants can supply) and toward energy sufficiency (the amounts of energy actually available on the system to serve electrical demand and ensure reliable operation), with emphasis on cross-sector coordination between the electric and natural gas industries. For example, if capacity is available, a level of certainty in the delivery of fuel is required to ensure that the energy generated is available to support demand. The 2023 Long-Term Reliability Assessment highlights these critical interdependencies between the electric and gas sectors. The ERO Enterprise supports these efforts to advance planning with continuous state and provincial outreach by Regional Entities, which serve as technical resources on reliability issues associated with energy assurance amidst the changing resource mix.

In 2023, NERC emphasized its position that natural gas is essential to reliability during the grid transformation, and reiterated NERC's commitment to working with the Commission, gas industry, and electric industry to follow up on the insights in the related report by the North American Energy Standards Board ("NAESB"). Continuing NERC's longstanding coordination

with NAESB, NERC supported NAESB’s efforts to identify solutions to the reliability challenges facing the interconnected BPS.⁸⁴ In February 2024, NERC’s Board held a Technical Session which included a Gas-Electric Coordination Panel composed of representatives from NERC, the Natural Gas Supply Association, the Electric Power Supply Association, and the Interstate Natural Gas Association of America. This Technical Session centered around discussion of the critical interdependencies existing between the electric and gas industries, where participants acknowledged the value of greater coordination.

In addition, NERC took direct action under the RSTC and as part of Reliability Standards development to tackle energy assurance. NERC established the Energy Reliability Assessment Task Force, which later transitioned to the Energy Reliability Assessment Working Group (“ERAWG”), to: (i) facilitate ongoing assessment of energy-related risks; and (ii) identify potential responsive measures to mitigate the risks associated with unassured energy supplies (such as output from variable energy resources, fuel location, and volatility in forecasted load). Based on its analyses, the ERAWG and RSTC endorsed two Standard Authorization Requests to support energy assurance.⁸⁵ NERC created a Reliability Standards development project, Project 2022-03 Energy Assurance with Energy-Constrained Resources, to address these issues on a high priority basis. Under the project, the drafting team will develop revisions to enhance reliability by requiring entities to perform energy reliability assessments to evaluate energy assurance, and to develop corrective action plans, operating plans, or other mitigating actions to address identified risks. The ERAWG began drafting a second volume of this whitepaper at the end of the Assessment Period

⁸⁴ NAESB, *Gas Electric Harmonization Forum Report* (July 28, 2023), https://www.naesb.org/pdf4/geh_final_report_072823.pdf.

⁸⁵ See *Considerations for Performing an Energy Reliability Assessment*, ERATF White Paper (Mar. 2023), https://www.nerc.com/comm/RSTC_Reliability_Guidelines/CLEAN_ERATF_Vol_1_WhitePaper_17MAY2023.pdf.

and continues to serve as a resource for the drafting team.⁸⁶ To support this work, the Electric-Gas Working Group prepared a whitepaper, *Design Basis for Natural Gas Study*.⁸⁷

NERC’s Business Plan and Budget recognizes the importance of these energy assurance activities. The Business Plan and Budget ensures that NERC has adequate resources to address critical emerging risks to BPS reliability, resilience, and security, while leveraging work by key partners. Two critical emerging risks addressed in the Business Plan and Budget include: (1) evolving energy availability concerns, as the resource mix changes and climate conditions become more extreme, and (2) heightened cyber-security and physical risks driven by supply chain vulnerabilities occurring at an unprecedented rate.⁸⁸ NERC’s Business Plan and Budget anticipates work throughout the next Assessment Period to enhance assessments to include evaluations of energy availability and expanded probabilistic methods that can identify risks of energy shortfall.⁸⁹

D. LAUNCHING THE INTERREGIONAL TRANSFER CAPABILITY STUDY (“ITCS”)

On June 3, 2023, the President signed into law the Fiscal Responsibility Act of 2023 in which Congress (as part of measures associated with the debt ceiling) required NERC to conduct an assessment by December 2, 2024 of the total transfer capability between transmission planning regions.⁹⁰ The study will analyze the amount of power that can be moved or transferred reliably

⁸⁶ In 2020, the RSTC Electric Gas Working Group issued the *Reliability Guideline: Fuel Assurance and Fuel-Related Reliability Risk Analysis for the Bulk-Power System* (Mar. 2020), https://www.nerc.com/comm/RSTC_Reliability_Guidelines/Fuel_Assurance_and_Fuel-Related_Reliability_Risk_Analysis_for_the_Bulk_Power_System.pdf.

⁸⁷ See NERC Electric Gas Working Group (EGWG), *Design Basis for a Natural Gas Study Whitepaper* (. Sept. 2023), www.nerc.com/comm/RSTC_Reliability_Guidelines/Design_Basis_for_Natural_Gas_Study.pdf. Please see EGWG website for more technical reference material.

⁸⁸ NERC, 2024 Business Plan and Budget (Aug. 9 2023) at p 2, <https://www.nerc.com/gov/bot/FINANCE/BusinessPlanandBudget/NERC%20Final%202024%20Business%20Plan%20and%20Budget.pdf> [hereinafter 2024 Business Plan and Budget].

⁸⁹ *Id.* at p. 24.

⁹⁰ Section 322 of the Fiscal Responsibility Act of 2023, Pub. L. No. 118-5, 137 Stat. 10 (2023) (providing, “The Electric Reliability Organization... in consultation with each regional entity... and each transmitting utility... that has facilities interconnected with a transmitting utility in a neighboring transmission planning region, shall

from one area to another area of the interconnected transmission systems. Transfer capability is a critical measure of the ability to address energy deficiencies by relying on distant resources and is a key component of a reliable and resilient BPS. Recent and continuing resource mix changes require greater access and deliverability of resources to maintain reliability, particularly during widespread, long duration extreme weather and environmental conditions.

NERC is conducting this study in consultation with Regional Entities and transmitting utilities, as required by Congress. Consistent with the section 215 regulatory model and Congressional expectations, the study is a collaborative effort across the ERO Enterprise and is sponsored by an executive leadership group, which oversees a project team composed of NERC and Regional Entity staff. The project team maintains a study framework⁹¹ and detailed study scope.⁹² In addition, an advisory group, composed of representatives from stakeholders in each Regional Entity footprint and Canada, provides insight on study scope, approach, results, and recommendations.⁹³

As noted in the quarterly study update posted on NERC’s website, NERC is currently finalizing the study framework, developing scoping documents, and honing a data request. Each of these are important steps toward producing a technically sound and rigorous study that is crucial

conduct a study of total transfer capability as defined in section 37.6(b)(1)(vi) of title 18, Code of Federal Regulations, between transmission planning regions that contains the following:

- (1) Current total transfer capability, between each pair of neighboring transmission planning regions.
- (2) A recommendation of prudent additions to total transfer capability between each pair of neighboring transmission planning regions that would demonstrably strengthen reliability within and among such neighboring transmission planning regions.
- (3) Recommendations to meet and maintain total transfer capability together with such recommended prudent additions to total transfer capability between each pair of neighboring transmission planning regions.”).

⁹¹ NERC, Study Framework: Interregional Transfer Capability Study (2023), https://www.nerc.com/pa/RAPA/Documents/ITCS_Framework_Clean.pdf.

⁹² NERC, ITCS Transfer Study Scope – Part I (Mar. 2024), https://www.nerc.com/pa/RAPA/Documents/ITCS_Transfer_Study_Scope_Part_I.pdf; NERC, ITCS SAMA Study Scope – Part II (Mar. 2024), https://www.nerc.com/pa/RAPA/Documents/ITCS_SAMA_Study_Scope_Part_II.pdf.

⁹³ NERC, Interregional Transfer Capability Study (ITCS) Advisory Group Scope, https://www.nerc.com/pa/RAPA/Documents/ITCS_Advisory_Group_Scope.pdf.

to the future of the electric industry.⁹⁴ This study, targeted for completion by December 2024, will set the foundation for the assessment of ongoing transfer capability measuring progress and risk as the resource mix changes across North America. NERC will then expand its analysis into 2025 to consider transfer capability across Canadian provinces. Going forward, NERC plans to include transfer capability in its long-term reliability assessments.

IX. INVESTING IN INFRASTRUCTURE TO SUPPORT AUTOMATION AND REDUCE ENTERPRISE RISK

During the past five years NERC enhanced its infrastructure to ensure that it continues as a durable body of knowledge even during unprecedented external events. These investments included eliminating and restructuring committees to reflect interwoven responsibilities, as explained in Section VII; automating processes through new technologies; and reducing enterprise-wide business risk by introducing an innovative workforce model⁹⁵ and hybrid office design.⁹⁶ NERC's efforts highlight its ability to thrive despite the challenges presented by a global pandemic amidst an evolving grid—efforts that create a sustainable and durable ERO.

Consistent with NERC's sustainability focus and its annual Business Plan and Budget, NERC invested in its infrastructure to reduce enterprise and cyber risks related to business activities and systems and create a more sustainable organization.⁹⁷ These investments included

⁹⁴ NERC maintains a dedicated web page for information and updates on the study, which can be found at <https://www.nerc.com/pa/RAPA/Pages/ITCS.aspx>.

⁹⁵ The Connected Workforce model is a flexible, interconnected work and technology system created based on feedback from employees during the pandemic. The Connected Workforce model classifies roles as onsite (roles that are best performed in the NERC offices), local (most responsibilities may be performed at a home office), and virtual (roles may be performed on an exclusively remote basis). This model enhances employee satisfaction and performance by giving staff greater flexibility, better work-life balance, and improved engagement and connection. NERC's investments in this area reduces enterprise-wide business risk by supporting talent retention and succession planning efforts across diverse geographic locations.

⁹⁶ In 2022, NERC introduced a new D.C. office space, the Collaboration Hub. The NERC Collaboration Hub reduced the amount of space needed by more than 25%, leading to substantial annual savings while providing a collaborative space for the ERO Enterprise and stakeholders to connect. This new space was intentionally designed to offer flexibility, collaboration, and connection in a sustainable environment and provide what NERC needs to work successfully toward its mission of a secure and reliable BPS.

⁹⁷ 2024 Business Plan and Budget at p. 2.

enhanced enterprise tools for performing compliance monitoring, enforcement, and registration functions, as well as updates to the Cybersecurity Risk Information Sharing Program. As described below and in Appendix B, NERC introduced several new technologies and tools to implement these investments.

A. COMPLIANCE INVESTMENTS: ALIGN AND SECURE EVIDENCE LOCKER⁹⁸

NERC introduced the Align tool, a platform to enhance the ERO Enterprise's ability to share and analyze data that is crucial to the security and reliability of the grid. The Align tool positions core CMEP business processes on a single, secure platform that includes functionality related to Enforcement and Mitigation, Periodic Data Submittals, Technical Feasibility Exceptions, Self-Certifications, Audits and Spot Checks, Inherent Risk Assessment, and Compliance Oversight Plans. The tool eliminates the varying processes and systems that led to inconsistency issues for monitoring compliance and enforcement across the ERO Enterprise. Implementing a single platform to capture and share crucial CMEP data more closely aligns ERO Enterprise business processes; improves documentation, sharing, and analysis; and makes CMEP activities more efficient and effective across the ERO Enterprise. Another related component is the ERO Secure Evidence Locker, a document management system that provides a secure, isolated environment to collect and protect CMEP evidence, and significantly reduces risk of loss or exposure of evidence and harmonize evidence collection processes. The Secure Evidence Locker provides enhanced security in evidence collection via an on-premises environment at a NERC-leased Tier 4 Data Center and supports consistent data and information handling practices.

⁹⁸ See NERC's dedicated web page for Align and Secure Evidence Locker (SEL), <https://www.nerc.com/ResourceCenter/Pages/Align-SEL.aspx>; see also NERC, Data Handling in Align and SEL (Aug. 2021), https://www.nerc.com/ResourceCenter/Align%20Documents/Align-and-SEL-Data-Handling_August_2021.pdf.

B. REGISTRATION INVESTMENTS: CENTRALIZED ORGANIZATION REGISTRATION ERO SYSTEM (CORES)

In addition, the Centralized Organization Registration ERO System (“CORES”)⁹⁹ technology project was established to move all registration functions from three separate systems to a single, secure, and consolidated system. The CORES tool provides consistency and alignment across the ERO Enterprise to manage registration information and entity affiliate information in one location, making it easier for the ERO Enterprise and registered entities to collaborate and share registration data. The tool collects registration information from both new and currently registered entities. NERC plans to continue to update CORES to support back-end implementation of its inverter-based resource-related Rules of Procedure revisions.

NERC’s recent investments to enhance its sustainability support overall ERO Enterprise organizational sustainability and enhance collaboration even during unprecedented external events like the global pandemic. That the ERO Enterprise achieved the enhancements to reliability and its processes described herein despite an intervening global pandemic demonstrates the resilience and coordination by the ERO Enterprise, Commission, state and provincial governmental authorities, and stakeholders in support of reliability.

X. COORDINATION WITH GOVERNMENTAL AUTHORITIES IN CANADA AND MEXICO¹⁰⁰

Since its certification as the North American ERO, NERC has taken steps to gain recognition in Canada and Mexico consistent with expectations in section 215, through memoranda of understanding and the establishment of reliability standards regimes in the

⁹⁹ See NERC’s dedicated web page for the Centralized Organization Registration ERO System (CORES) Technology Project, <https://www.nerc.com/pa/comp/Pages/CORESTechnologyProject.aspx>.

Canadian Provinces.¹⁰¹ Throughout the Assessment Period and looking forward, NERC continues to coordinate with governmental authorities in Canada and Mexico. NERC’s mission recognizes that the interconnected BPS in North America is a tri-national grid, spanning the continental United States and parts of Canada and Mexico. In Canada, this includes the interconnected provinces, each with unique regulatory structures. As the grid continues to evolve in response to changes in policy, advances in technology, and other drivers in each of these jurisdictions, it is essential that the regulatory frameworks for reliability and security are compatible across jurisdictional boundaries to provide clarity and certainty for BPS users, owners, and operators, and to prevent a recurrence of the international blackouts that contributed to the creation of an international ERO. Effective collaboration between NERC, the Regional Entities, and governmental authorities continues to be a key driver for success of the ERO Enterprise across North America.¹⁰²

NERC continues strengthening its proactive outreach and communication with key provincial and federal regulatory bodies, policy makers, and associations across its footprint. Activities include periodic virtual briefings with the Canadian Association of Members of Public Utility Tribunals (“CAMPUT”) and its members,¹⁰³ as well as on-site discussions covering NERC programs and relevant topics pertaining to the ever-changing reliability and security challenges. Canadian entities’ participation in NERC committees also remains strong, and collaboration with appropriate provincial organizations in areas like compliance monitoring and enforcement is advancing. In 2022, NERC also began work on gathering requirements for Canadian provinces

¹⁰¹ Demonstrates effort to accomplish NERC’s execution of its obligations consistent with expectations in 18 C.F.R. § 39.3(b)(2)(v). 18 C.F.R. § 39.3(b) (providing, “[a]fter notice and an opportunity for public comment, the Commission may certify one such applicant as an Electric Reliability Organization, if the Commission determines such applicant: 1. Has the ability to develop and enforce, subject to § 39.7, Reliability Standards..., and 2. Has established rules that:... (v) Provide appropriate steps, after certification by the Commission as the Electric Reliability Organization, to gain recognition in Canada and Mexico.”).

¹⁰² NERC continues to work closely with WECC, to pursue additional opportunities to work with Mexico and reignite discussions to achieve the level of collaboration seen in prior years.

¹⁰³ <https://camput.org/>.

interested in using Align and the Secure Evidence Locker. Several provinces began to use both systems in 2023, increasing the value of these systems in support of North American BPS reliability. The E-ISAC also expanded its coordination with Canadian partners. For example, the E-ISAC welcomed the participation of Canadian regulators in the E-ISAC's monthly threat briefing, reflecting the energy industry's acknowledgement that cyber threats can have significant cross-border impacts. These meetings expand information sharing in a manner consistent with the E-ISAC code of conduct provisions pertaining to confidential information and increase situational awareness to help inform program areas of emerging threats and vulnerabilities.

XI. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to:¹⁰⁴

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XII. CONCLUSION

For the reasons stated above, NERC's Performance Assessment demonstrates how NERC continues to satisfy statutory and regulatory criteria for certification as the ERO. The Performance Assessment summarizes the ERO Enterprise's consistent effort during the past five years to ensure

¹⁰⁴ Persons to be included on the Commission's service list are identified by an asterisk. NERC respectfully requests a waiver of Rule 203 of the Commission's regulations, 18 C.F.R. § 385.203 (2024), to allow the inclusion of more than two persons on the service list in this proceeding.

reliability, resilience, and security through NERC's four focus areas: (i) Energy; (ii) Security; (iii) Agility; and (iv) Sustainability. As a result, NERC has made significant strides to:

- (i) Tackle the reliability and resilience challenges of grid transformation and extreme weather;
- (ii) Enhance the focus on risk, monitoring, and evolution;
- (iii) Become a more nimble organization more responsive to risk identification and Standards development; and
- (iv) Invest in automation, eliminate single points of failure, and strengthen NERC's long term value.

Executing this strategy with the support of the Commission, other North American governmental authorities, and industry stakeholders has helped ensure continued reliability and resilience in a changing world. NERC again expresses its gratitude for all those who have participated in this process and contributed to the successes outlined in this Performance Assessment. NERC looks forward to continuing to help achieve a highly reliable and secure BPS to support the lives of nearly 400 million people in North America.

Respectfully submitted,

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Appendix A

Enhanced Reliability Standards Development Procedures & Prioritization

NERC’s mission is to assure the effective and efficient reduction of risks to the reliability and security of the Bulk Power System (“BPS”). As the Commission-certified ERO under section 215 of the Federal Power Act, one of NERC’s primary responsibilities under the statute is to develop Reliability Standards that provide for an adequate level of reliability.¹ The statute further provides that NERC must have rules that “provide for reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing reliability standards and otherwise exercising its duties.”² NERC’s Rules of Procedure are designed to provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing proposed Reliability Standards, consistent with section 215 and the Commission’s implementing regulations, and to address the other requirements identified by the Commission in Order No. 672.³

I. Enhancements to the Standards Development Process

Section 300 of the NERC Rules of Procedure establishes the general framework for Reliability Standards consistent with statutory and regulatory requirements, including the obligation of NERC to develop Reliability Standards, for those Reliability Standards to meet certain essential attributes, and for Reliability Standards to be developed according to certain

¹ 16 U.S.C. § 824o(c)(1).

² 16 U.S.C. § 824o(c)(2)(d). *See also* 18 C.F.R. § 39.

³ *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, 114 FERC 61,104 at P 258 (2006), *order on reh’g*, Order No. 672-A, 114 FERC 61,328 (2006) (stating that NERC’s process “must ensure that any Reliability Standard is technically sound and the technical specifications proposed would achieve a valuable reliability goal. The process must also: (1) be open and fair; (2) appropriately balance the interests of stakeholders; (3) include steps to evaluate the effect of the proposed Reliability Standard on competition; (4) meet the requirements of due process; and (5) not unnecessarily delay development of the proposed Reliability Standard.”).

essential principles. Additional support and detail for Reliability Standards development is contained in three Rules of Procedure appendices:

- Appendix 3A: Standard Processes Manual (effective November 28, 2023),⁴ which contains the processes for developing Reliability Standards, consistent with the essential principles of openness, transparency, consensus-building, balance of interests, due process, and timeliness;
- Appendix 3B: Procedure for Election of Members of the Standards Committee (effective August 25, 2022),⁵ which contains the procedure for electing members to the NERC Standards Committee (“SC”), the committee charged under NERC’s rules with oversight of NERC’s processes for developing Reliability Standards; and
- Appendix 3D: Registered Ballot Body Criteria (effective August 25, 2022),⁶ which sets forth the criteria for each of the ten stakeholder segments that votes on NERC Reliability Standards and establishes registration procedures and segment qualification guidelines.

Collectively, these portions of NERC’s Rules of Procedure provide reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing Reliability Standards. Additionally, NERC oversees the development of regional Reliability Standards and variances proposed by the Regional Entities in accordance with the delegation agreements authorized by 18 C.F.R. § 39.8, as well as the rules and processes adopted by each Regional Entity for the development of such regional Reliability Standards and variances. Like NERC, each Regional Entity seeking to develop regional Reliability Standards or variances must have rules that provide for reasonable notice and opportunity for public comment, due process, openness, and balance of interests. NERC’s oversight of regional standards activity is conducted in accordance with Sections 311 and 312 of the NERC Rules of Procedure. This oversight includes

⁴ *N. Am. Elec. Reliability Corp.*, 185 FERC ¶ 61,146 (2023) [hereinafter SPM v5 Order].

⁵ *N. Am. Elec. Reliability Corp.*, 180 FERC ¶ 61,122 (Aug. 25, 2022) (approving revisions to Section 300, Appendix 3B, and Appendix 3D to the NERC Rules of Procedure) [hereinafter 2022 ROP Order].

⁶ *Id.*

opportunities for public comment prior to NERC Board of Trustees (“Board”) adoption or approval.

From time to time, NERC has proposed revisions to its Rules of Procedure for standards development for Commission approval. In 2021 and 2023, NERC developed revisions addressing multiple aspects of NERC’s standards development processes. The more notable of these revisions were approved by the Commission in 2023 and are discussed more fully below.⁷ These revisions provide NERC with new and enhanced procedural tools and flexibility to address urgent reliability issues in a timely manner, while maintaining a fair and open process for standards development as required by section 215.

The Rules of Procedure revisions in 2023 were motivated by NERC’s determination to improve its standards development processes so that it could address new and emerging threats to the grid in a nimble and agile manner. Reliability of the BPS has been challenged in recent years by a major transformation driven by a rapidly changing resource mix; widespread, long duration extreme weather and critical infrastructure interdependencies; and increasing security threats that continue to evolve in sophistication and frequency. This rapidly evolving landscape has resulted in a multitude of new NERC and Commission-initiated standards development projects. These new projects place considerable pressure on NERC resources as well as those of NERC’s stakeholder experts charged with developing technically sound, consensus Reliability Standards.

In light of the need to expeditiously address challenges of the transforming grid, the Board directed NERC staff on February 10, 2022 to examine the body of rules regarding Reliability Standards development and, considering the feedback of stakeholders, recommend changes to

⁷ *Petition of NERC for Approval of Revisions to the NERC Rules of Procedure Regarding Reliability Standards and Request for Expedited Action*, Docket RR23-04-000 (Sept. 15, 2023), approved in SPM v5 Order, *supra*.

improve NERC’s ability to address urgent reliability needs with appropriate agility, while maintaining the reasonable notice and opportunity for public comment, due process, openness, and balance of interests required by section 215.⁸ NERC staff worked with a representative stakeholder group to develop and present a series of consensus recommendations to the Board in October 2022. The recommendations consisted of: (i) revisions to Section 300 of the Rules of Procedure and the Standard Processes Manual under Appendix 3A; (ii) recommendations for standing committees for improving the administration of, and inputs to, the standards development process; and (iii) a review of the Registered Ballot Body criteria. Collectively, these recommendations promoted efficiencies in the development of results-based, consensus-driven Reliability Standards by eliminating procedural inefficiencies that do little to advance the cause of developing timely, technically sound, and consensus-driven standards, while at the same time maintaining meaningful stakeholder engagement in NERC’s process.

The first stage of these efforts culminated in September 2023, when NERC proposed a series of consensus revisions to Section 300 of the Rules of Procedure and the Standard Processes Manual in Appendix 3A. As NERC discussed more fully in Docket No. RR23-4-000, these changes included a new authority by which the NERC Board, as the ERO governance body, may direct the development of Reliability Standards and ensure that responsive standards are developed. NERC also incorporated flexibility in how it chooses to implement the core attributes of an open and inclusive process, subject to Commission oversight, should additional changes be necessary in the future.

⁸ See Minutes of the NERC Board of Trustees February 10, 2022 meeting at 10-11, <https://www.nerc.com/gov/bot/Agenda%20highlights%20and%20Minutes%202013/Board%20Open%20Meeting%20Minutes%20-%20February%2010,%202022.pdf>.

The Commission approved NERC’s proposed revisions in November 2023. In its order, the Commission expressed its support for NERC’s efforts to increase the speed and flexibility of its standards development processes. The Commission directed NERC to report on the success of these measures, and identify if further improvements are needed, by May 2025.⁹

NERC’s recent Rules of Procedure revisions are only one part of improving the agility of NERC’s standards development processes. NERC, working with the representative stakeholder group, also identified opportunities to improve how NERC administers its standards development processes, encourages industry participation, and works with stakeholder committees to build strong foundations for new projects addressing reliability issues. For example, NERC identified an opportunity to revisit the composition of its Registered Ballot Body, which it is required to do from time to time, to optimize its role in NERC’s process. NERC also identified an opportunity to optimize its project prioritization efforts, so that the most urgent reliability issues are being

⁹ SPM v5 Order at P 28 (citations omitted):

We support NERC’s efforts to increase the speed and flexibility of the Reliability Standards development process. At the same time, we remain concerned of the ongoing need for a timely and responsive Reliability Standards development process given the rapid pace of change in the reliability and security of the Bulk-Power System. Therefore, to determine the effectiveness of NERC’s revisions to address “important reliability issues in a timely manner,” we direct NERC to submit an informational report with the Commission no later than 18 months after the date of this order. NERC’s filing should discuss the effectiveness of the new provisions in addressing important reliability issues in a timely manner and whether any further refinements are needed. Specifically, the informational report should contain: (1) statistical and numerical data such as comparison of development times for Reliability Standards before and after implementation; (2) a discussion of how NERC, with the revised procedures, has been able to expedite the successful development and approval of Reliability Standards addressing priority topics such as changing resource mix, extreme weather, and cybersecurity; (3) alternatively, the cause of delays or inability to move forward with a needed Reliability Standard; (4) recommended solutions to address identified concerns with the Reliability Standards development process; and (5) a discussion of how NERC’s transparency measures, with the revised procedures including the removal of the ANSI standard requirements, have been sufficient to ensure that NERC continues to meet the Commission’s requirements that the standards process be open and fair, appropriately balances the interest of stakeholders, includes steps to evaluate the effects of standards on competition, and meets the due process requirements.

addressed first. Efforts to address these recommendations are underway through 2024, and work toward the end of the Assessment Period is already driving the improvements discussed below.

II. Prioritization

At this time, NERC has over 25 active standards development projects addressing topics including inverter-based resource (“IBR”) modeling and performance, cyber and physical security, extreme weather preparedness, and energy assurance, with more projects expected to begin in the coming months.¹⁰ Among these are multiple projects addressing Commission directives, including directives from Commission Order Nos. 887,¹¹ 896,¹² and 901,¹³ each with aggressive development deadlines set by the Commission. NERC also has numerous projects underway pre-dating the issuance of these orders that address reliability risks identified through event reports, the NERC Reliability Issues Steering Committee’s biennial ERO Reliability Risk Priorities Report, and compliance feedback loops. NERC expects additional efforts will also be needed to review Reliability Standards following the Commission’s November 2022 order directing the registration of IBRs.¹⁴

With the sheer volume of active standards development projects, NERC has undertaken an effort to better prioritize these projects so the most urgent and pressing risks to the grid are addressed in a timelier manner and in accordance with any applicable Commission deadlines. Each

¹⁰ A list of active projects is maintained on NERC’s Reliability Standards Under Development web page, <https://www.nerc.com/pa/Stand/Pages/Standards-Under-Development.aspx>.

¹¹ Order No. 887, *Internal Network Security Monitoring for High and Medium Impact Bulk Electric System Cyber Systems*, 182 FERC ¶ 61,021 (2023) (directing the development of Reliability Standards requiring internal network security monitoring by July 2024).

¹² Order No. 896, *Transmission System Planning Performance Requirements for Extreme Weather*, 183 FERC ¶ 61,191 (2023) (directing the development of a transmission planning Reliability Standard to address extreme heat and extreme cold conditions by December 2024).

¹³ Order No. 901, *Reliability Standards to Address Inverter-Based Resources*, 185 FERC ¶ 61,042 (2023) (directing the development of Reliability Standards to address reliability gaps related to inverter-based resources in three tranches, due November 2024, November 2025, and November 2026).

¹⁴ *Registration of Inverter-Based Resources*, 181 FERC ¶ 61,124 (2022).

year, NERC prepares a Reliability Standards Development Plan under Section 310 of its Rules of Procedure, providing its prioritization of projects for the coming year, as well as a progress report comparing results to the previous year’s plan. This plan, however, is only a snapshot in time: as new reliability needs emerge or new directives are issued to NERC, projects must be reprioritized accordingly. NERC’s Reliability Standards development staff have implemented an enhanced prioritization process to ensure that the highest priority projects are addressed first, with consideration of resource constraints that could limit meaningful engagement in NERC’s processes and slow progress on addressing important reliability issues.

Projects responding to Commission directives, or those identified by NERC as addressing high priority risks (via ERO Enterprise reports or Work Plan Priorities), are rated as the highest priority to help ensure timely completion. However, the current landscape presents an unprecedented number of reliability challenges, necessitating further categorization and prioritization that may differ from NERC’s traditional definitions of high priority projects. NERC’s efforts are focused on establishing clear expectations and criteria for designating specific projects for high priority treatment. As a result, some existing, older projects with lower priority rankings will be intentionally slowed or pursued in phases to allow increased attention and focus on addressing the higher priority projects. As higher priority projects are completed, other projects will be elevated in priority for completion.

III. Additional Process Efficiencies

As noted above, NERC has identified additional opportunities to improve the administration of its existing standards projects that do not require any changes to NERC’s Commission-approved Rules of Procedure. NERC also identified opportunities to improve how it identifies the scope and need for new projects. For example, in September 2023, the Reliability

and Security Technical Committee (“RSTC”) endorsed a Standard Authorization Request development process to support full technical justification and vetting for any such request originating from RSTC subgroups to improve technical development of the issues, visibility, and consensus for new projects at the earliest stages. NERC has also revised the content of its Standard Authorization Request form that sets forth the need and scope of a proposed project, to focus on reliability need and provide factors that will assist in project prioritization.

NERC has identified opportunities to improve how it assesses industry consensus for new projects using standardized questions accompanying each posting. The goal of these efforts is to better assess consensus and areas for further work at the outset of a project. Additionally, NERC has identified opportunities to improve the administration of NERC’s standard processes through the Standards Committee and the Standards Committee Executive Committee, with the goal of reducing time between the completion of work and the receipt of needed authorizations at various stages in the process. As directed by the Commission, NERC will examine the efficacy of its 2023 Rules of Procedure revisions in improving the speed and agility of NERC’s standards development process in its May 2025 informational filing, and may recommend or propose additional enhancements at that time.

IV. Dedicating Additional Resources to Reliability Standards Development

NERC continues to assess its standard development program needs and has added, or will add, additional staff and resources as needed to ensure timely completion of projects commensurate with their priority. Since 2021, NERC has added six standards development staff, consisting of new standards developers, standards information support personnel, contractors, and staff reallocated from other departments. Looking forward, NERC is planning to increase the number of full-time equivalent personnel by three, to include additional standards development

and standards information support staff. NERC will use contractor resources, as needed, to support its efforts. NERC is also exploring continuing to reallocate existing NERC resources, as appropriate, to support the standards development program. NERC appreciates the Commission’s October 23, 2023 order approving a modification of the 2013 Settlement Agreement between the NERC and the Commission’s Office of Enforcement,¹⁵ which provides NERC with additional flexibility to address Commission directives and other high priority projects that are identified following the start of a budget year.

V. Driving Improved Reliability Standards through Feedback Loops

NERC continued to strengthen the synergies between its standards development program and other activities undertaken by NERC and the ERO Enterprise. This includes consideration of issues identified through the following channels:

- (i) input and recommendations from the Reliability Issues Steering Committee (“RISC”) and NERC’s technically-focused standing committees and subcommittees;
- (ii) data from the Compliance Monitoring and Enforcement Program (“CMEP”), including the evaluation of compliance violation statistics, and reported areas of concern, among others;
- (iii) data and lessons learned from the Events Analysis program area;
- (iv) Commission input, including through the Commission’s Annual Reliability Technical Conference;
- (v) areas highlighted in the State of Reliability Report and other reliability assessments; and
- (vi) Regional Entity feedback.

NERC recognizes that the synergy between each of these channels and Reliability Standards varies, and NERC continuously strives for improvement. Below are several examples

¹⁵ *N. Am. Elec. Reliability Corp.*, 185 FERC ¶ 61,055 (2023) (approving a modification to the Settlement Agreement between the Office of Enforcement and NERC initially approved on January 16, 2013 and directing compliance filing).

of how NERC’s maturing synergies with the above-mentioned channels have impacted Reliability Standards development:

a. Reliability Issues Steering Committee (“RISC”) Input and Recommendations

The RISC provides guidance to the ERO Enterprise and the industry to effectively focus resources on the critical issues to improve the reliability of the BPS. The ERO Reliability Risk Priorities Report presents the results of the RISC’s continued work to strategically define and prioritize risks to the reliable operation of the BPS and thereby provide recommendations to the Board regarding the approach that NERC, the ERO Enterprise, and industry should take to enhance reliability and manage those risks. The 2021 ERO Reliability Risk Priorities Report highlighted grid transformation, extreme weather events, security risks, and critical infrastructure dependencies as key risks.¹⁶ The 2023 ERO Reliability Risk Priorities Report highlighted energy policy, grid transformation, resilience to extreme weather events, security risks, and critical infrastructure dependencies as key risks.¹⁷ These projects demonstrate NERC’s commitment to pursuing the priorities as highlighted in each of these reports.

b. Reliability and Security Technical Committee (“RSTC”) Initiatives

The RSTC and its subcommittees prepared several Standard Authorization Requests to address reliability issues during the Assessment Period. For example, the RSTC’s Inverter Based Resource Performance Task Force developed several Standard Authorization Requests to address IBR issues in response to ERO Enterprise assessments, including: (1) Project 2020-06, Generator-ride through (PRC-024-3); (2) Project 2021-02, Modifications to VAR-004-4.1; (3) Project 2021-

¹⁶ NERC RISC, *2021 ERO Reliability Risk Priorities Report*, https://www.nerc.com/comm/RISC/Documents/RISC%20ERO%20Priorities%20Report_Final_RISC_Approved_July_8_2021_Board_Submitted_Copy.pdf.

¹⁷ NERC RISC, *2023 ERO Reliability Risk Priorities Report*, https://www.nerc.com/comm/RISC/Related%20Files%20DL/RISC_ERO_Priorities_Report_2023_Board_Approved_Aug_17_2023.pdf.

04, Modifications to PRC-002 Phase II; (4) Project 2022-02, Modifications to TPL-001 and MOD-032; (5) Project 2022-04, EMT Modeling; (6) Project 2023-01, EOP-004 IBR Event Reporting; and (7) Project 2023-02, Performance of IBRs. Several of these projects were modified and assigned high priority status as they map to issues identified in the Commission’s Order No. 901. These IBR projects constituted a significant portion of NERC’s standards development work during the Assessment Period, and will continue to do so as NERC addresses the directives in Order No. 901 and other IBR-related reliability issues. In addition, due to the need for increased focus on energy assurance issues in the modern, interconnected BPS, NERC created the Energy Reliability Assessment Task Force under the RSTC (now the Energy Reliability Assessment Working Group). The subgroup’s work resulted in a new high priority project, Project 2022-03 Energy Assurance with Energy-Constrained Resources, that seeks to enhance reliability by requiring entities to perform Energy Reliability Assessments to evaluate energy assurance and respond appropriately in the operations and planning time horizons.

c. Event Analysis

ERO Enterprise event analysis has driven the creation of several projects, as discussed in the context of IBRs above and in NERC’s IBR Rules of Procedure filing in Docket No. RM24-2. Additionally, the ERO Enterprise/FERC staff joint inquiries into grid operations during the 2018 and 2021 cold weather events affecting Texas and the south central United States resulted in the development of a comprehensive suite of cold weather preparedness and operations requirements that will advance BPS reliability during future winter seasons. Project 2019-06 – Cold Weather, completed on a high priority basis in 2021, addressed the recommendations of the joint inquiry team investigating the causes of the January 17, 2018 cold weather event.¹⁸ Project 2021-07

¹⁸ FERC and NERC Staff Report: The South Central United States Cold Weather Bulk Electric System Event of January 17, 2018 (July 2019), <https://www.ferc.gov/legal/staff-reports/2019/07-18-19-ferc-nerc-report.pdf>.

Extreme Cold Weather Grid Operations, Preparedness, and Coordination addressed in two phases the recommendations of the joint inquiry team investigating the causes of the February 2021 cold weather event affecting Texas and the south central United States.¹⁹ These two phases concluded in late 2022 and 2023, respectively, in accordance with the recommended high-priority time frames for their completion. NERC completed a third phase dedicated to addressing Commission directives in February 2024. As entities implement these important Reliability Standards, NERC will examine compliance data and lessons learned from subsequent winter seasons to determine if further refinements are needed to assure cold weather reliability.²⁰

d. Compliance

Compliance feedback loops have also resulted in the initiation of projects such as Project 2022-05 Modifications to CIP-008 Reporting Threshold, and Project 2023-06 CIP-014 Risk Assessment Refinement. As part of its work for 2024 and beyond, NERC is enhancing and prioritizing the Reliability Standards development process to address compliance feedback loops and ensure that identified issues are addressed in a timely manner.

¹⁹ FERC, NERC, Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States (Nov. 2021), <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and>.

²⁰ See, e.g., FERC, NERC, and Regional Entity Staff Report, Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott at 132 (Oct. 2023), <https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022> (recommending robust monitoring of compliance with cold weather Reliability Standards to determine if reliability gaps exist); see also FERC, NERC To Review Bulk Power System Performance During Recent Winter Storms, <https://www.nerc.com/news/Pages/FERC,-NERC-to-Review-Bulk-Power-System-Performance-During-Recent-Winter-Storms-.aspx> (announcing a FERC and ERO Enterprise joint staff review of grid performance during arctic cold conditions in January 2024 for insights and lessons learned).

Appendix B

Harmonizing a Risk-Based Approach to the Compliance Monitoring and Enforcement Program

During the Assessment Period, NERC continued to develop its robust Compliance Monitoring and Enforcement Program (“CMEP”). NERC focused on further harmonizing internal and externally facing processes across the ERO Enterprise to promote a risk-based focus in identification and CMEP processes. Risk-based compliance monitoring and enforcement focuses on identifying, prioritizing, and addressing risks to the Bulk Power System (“BPS”), enabling entities to direct resources to high priority areas. The ERO Enterprise began this shift to a risk-based CMEP in 2011 with implementation of streamlined methods for disposing of minimal risk noncompliance. Each Performance Assessment has documented CMEP activities monitoring industry implementation of mandatory Reliability Standards and enforcement of noncompliance.

During the Assessment Period, NERC matured its compliance monitoring and enforcement activities through program development and ERO Enterprise-wide oversight activities. As discussed below, NERC developed updates to its Sanction Guidelines under the Rules of Procedure to enhance transparency surrounding penalty determinations, and revised other CMEP provisions to improve program effectiveness and efficiency. NERC developed and deployed the Align tool with the Secure Evidence Locker to improve and standardize CMEP processes and data management across the ERO Enterprise. NERC staff also provided feedback regarding Reliability Standards and risk identification consistent with the feedback loops between CMEP and Reliability Standards.

The following sections provide additional detail regarding compliance monitoring programmatic enhancements, improvements in implementation of CMEP activities, and an

example of CMEP feedback under FAC-008. Each of these areas demonstrates NERC's implementation of an increasingly agile CMEP to support reliability in the transforming grid.

I. Compliance Monitoring

As discussed below, NERC implemented risk-based compliance monitoring across the ERO Enterprise according to the program guidelines and successfully aligned various components of risk-based compliance monitoring. Compliance monitoring oversight activities during the Assessment Period included identifying ERO Enterprise-wide improvements to inform future training and oversight priorities while monitoring Regional Entity program effectiveness.

NERC Compliance Assurance's oversight strategy focuses on clear expectations for the compliance monitoring aspects of CMEP implementation. Various factors inform this oversight strategy, including independent audit results conducted by NERC Internal Audit staff, results from previous oversight activities, measures tracked through program development, and industry perception and feedback. The following are key enhancements resulting from NERC oversight:

- Documented its Complaint tracking process, which includes internal controls for ensuring the process performs as expected internally and at the regional level as well as evaluated technology to automate the tracking, trending, and processing of Complaints;
- Enhanced its Regional Entity compliance monitoring schedule tracking process and evaluated technology to automate the tracking of Regional Entity compliance monitoring execution;
- Updated the existing Regional Entity compliance audits and reporting procedure to include additional controls to ensure process effectiveness. In addition, NERC Compliance Assurance publicly posted delayed reports and evaluated technology to introduce possible automation for tracking, notifications, and visibility;
- Formalized an onboarding checklist, including implementing controls to ensure completion of required training prior to performing oversight responsibilities. In addition to the onboarding checklist, NERC Compliance Assurance developed a periodic training evaluation process to ensure NERC Compliance Assurance staff periodically receive the necessary training to effectively perform Bulk-Power System reliability and security oversight;
- Formalized its reporting and data access to Technical Feasibility Exceptions process, to include controls to ensure data confidentiality; and

- Provided additional awareness of the established Program Alignment Process via NERC’s “Currently Compliant” podcast.

Separately from NERC’s oversight activities, NERC’s Compliance Assurance program area leveraged ERO Enterprise collaboration groups, such as the Risk Performance and Monitoring Group, to work on program development, including support of training exercises to facilitate more robust and consistent implementation of risk-based practices. These collaborative efforts are distinct from NERC’s oversight activities and support consistency and effectiveness of the CMEP across the ERO Enterprise. The following section presents key highlights from NERC’s compliance monitoring during the Assessment Period.

a. Risk-based Compliance Monitoring

As noted above, a key outcome of NERC Compliance Assurance activities for oversight and program development included maturation of elements that support the risk-based CMEP. NERC Compliance Assurance collaborates with Regional Entities to collect regional risk-based compliance oversight plan and Inherent Risk Assessment development processes, and to foster continuing maturation of these processes across the ERO Enterprise. To implement the risk-based approach, NERC Compliance Assurance monitors Inherent Risk Assessment and compliance oversight plan completion while refreshing processes to ensure they are applied in a representative manner across each Regional Entity’s footprint. Specifically, recent NERC Compliance Assurance achievements implementing the risk-based compliance monitoring approach include the following:

- Collaborated with Regional Entities, primarily through the ERO Enterprise-wide Risk Performance and Monitoring Group, to ensure risk management expectations were established;
- Established oversight engagements with clear objectives around the usage of the annual CMEP Implementation Plan Risk Elements, Inherent Risk Assessments, and Compliance Oversight Plans; and

- In collaboration with the ERO Enterprise Risk Performance and Monitoring Group, created an ERO Enterprise internal controls vision statement, ERO Enterprise Internal controls maturity model for assessing internal controls, and enhanced the Inherent Risk Assessment and compliance oversight plan processes.

b. Audit Consistency

NERC performs targeted sampling and review of how Regional Entities have implemented certain aspects of the CMEP, in addition to audits. NERC Compliance Assurance sampled and reviewed audits initiated by Regional Entities in 2022, with the objective of assuring that Regional Entities continue to implement key components of compliance audits as required. The review scope included evaluating the Regional Entities' adherence to the NERC Rules of Procedure, particularly regarding timeliness of Audit Notification Letters and adherence to audit team requirements (i.e., member composition and training requirements). NERC Compliance Assurance completed this review in 2023, confirming that all required training and notifications were completed.

In addition to conducting oversight of procedural consistency, NERC Compliance Assurance initiated a spot check reviewing the technical content of Regional Entity compliance audit determinations in 2023. Specifically, NERC Compliance Assurance selected requirements from a standard in the Critical Infrastructure Protection ("CIP") family (CIP-008-6, Requirements R1 and R2) and a standard in the Emergency Operations family (EOP-011-2, Requirements R7 and R8).

c. Compliance Feedback on Standards Implementation

In addition to the oversight and program development activities, the ERO Enterprise leveraged its data and expertise in compliance monitoring to inform enhancements to Reliability Standards and their implementation. The ERO Enterprise recognizes the importance of providing compliance experiences and practices to assist in evaluating the efficacy of Reliability Standards in supporting safe, secure, and reliable operations. Throughout the Assessment Period, the ERO Enterprise provided feedback on CIP-008, CIP-013, CIP-014, FAC-008, and the proposed requirements within the CIP Reliability Standards regarding Internal Network Security Monitoring, among others. This feedback led to Standard Authorization Requests and other activities to further strengthen the Reliability Standards and their implementation. CMEP feedback loops supported initiation of projects such as Project 2022-05 Modifications to CIP-008 Reporting Threshold, and Project 2023-06 CIP-014 Risk Assessment Refinement. NERC Compliance Assurance continues to assess whether it will provide feedback on Reliability Standards based on its oversight and the Regional Entities' compliance monitoring activities. In addition, NERC Compliance Assurance will leverage its data capabilities in Align to determine whether additional feedback on Reliability Standards should be shared in the future.

d. Facility Ratings Case Study of Feedback Loops

One detailed example of lessons learned from NERC Compliance Assurance is presented by the Facility Ratings Case Study. The ERO Enterprise provided feedback on FAC-008 based on an assessment of Facility Ratings among registered entities. Facility Ratings play a significant role in planning and operating the BPS. Through compliance monitoring and enforcement activities in recent years, the ERO Enterprise identified an uptick in moderate and serious risk violations of the NERC Reliability Standard for Facility Ratings (FAC-008), noting a correlation of the violations

to accuracy of equipment inventory and change management. The findings include significant and widespread discrepancies across the ERO Enterprise. This information suggests that registered entities with strong controls and change management procedures typically have better data that results in more accurate Facility Ratings than entities that have not taken meaningful steps to develop strong controls, focus on change management, or validate field conditions with Facility Ratings databases. These latter entities are prone to discrepancies that may result in noncompliance.

In 2020, in conjunction with the North American Transmission Forum (“NATF”), the ERO Enterprise developed a Facility Ratings Problem Statement and presented on Facility Ratings activities to the Compliance and Certification Committee. The problem statement informs the focus the ERO Enterprise continues to use in coordination with the NATF and stakeholder committees. In support of its role to provide stakeholder feedback related to ERO Enterprise programs, the Compliance and Certification Committee additionally created a Facility Ratings Task Force to coordinate recommendations to NERC. On June 17, 2020, the ERO Enterprise published a CMEP Practice Guide, *Evaluation of Facility Ratings and System Operating Limits*.¹ The guide identifies how ERO Enterprise staff evaluate facility ratings programs, and highlights the correlation between program strength, change management, and accurate ratings.

In November 2021, the ERO Enterprise shared its call to action to address potential risks associated with incorrect Facility Ratings. The ERO Enterprise has actively engaged in identifying and working to mitigate challenges associated with Facility Ratings programs. In the November 2021 call to action, the ERO Enterprise committed to using a risk-based approach to examine all

¹ ERO Enterprise CMEP Practice Guide: Evaluation of Facility Ratings and System Operating Limits (June 17, 2020), https://www.nerc.com/pa/comp/guidance/CMEPPpracticeGuidesDL/ERO%20Enterprise%20CMEP%20Practice%20Guide_%20Evaluation%20of%20Facility%20Ratings%20and%20System%20Operating%20Limits.pdf.

registered entities with FAC-008 obligations. On May 24, 2023, the ERO Enterprise collaborated to host a webinar on Facility Rating Management.² The webinar highlighted the ERO Enterprise’s *Themes and Best Practices for Sustaining Accurate Facility Ratings* report.³ Various industry and ERO Enterprise speakers discussed management best practices and other facility rating mitigation approaches that could benefit registered entities’ facility rating programs.⁴

The call to action supports the development and continued execution of registered entity risk-based Facility Ratings programs and resolution of Facility Ratings noncompliance using existing tools. Since the November 2021 call to action, the ERO Enterprise has completed a monitoring engagement or enforcement activity related to Facility Ratings for each of the High Inherent Risk Generator Owners (“GO”) and Transmission Owners (“TO”) as identified in each entity’s Inherent Risk Assessment. As shown in the chart below, the ERO Enterprise has completed a compliance monitoring activity for nearly all medium risk GOs and TOs and over half of low risk GOs and TOs.⁵

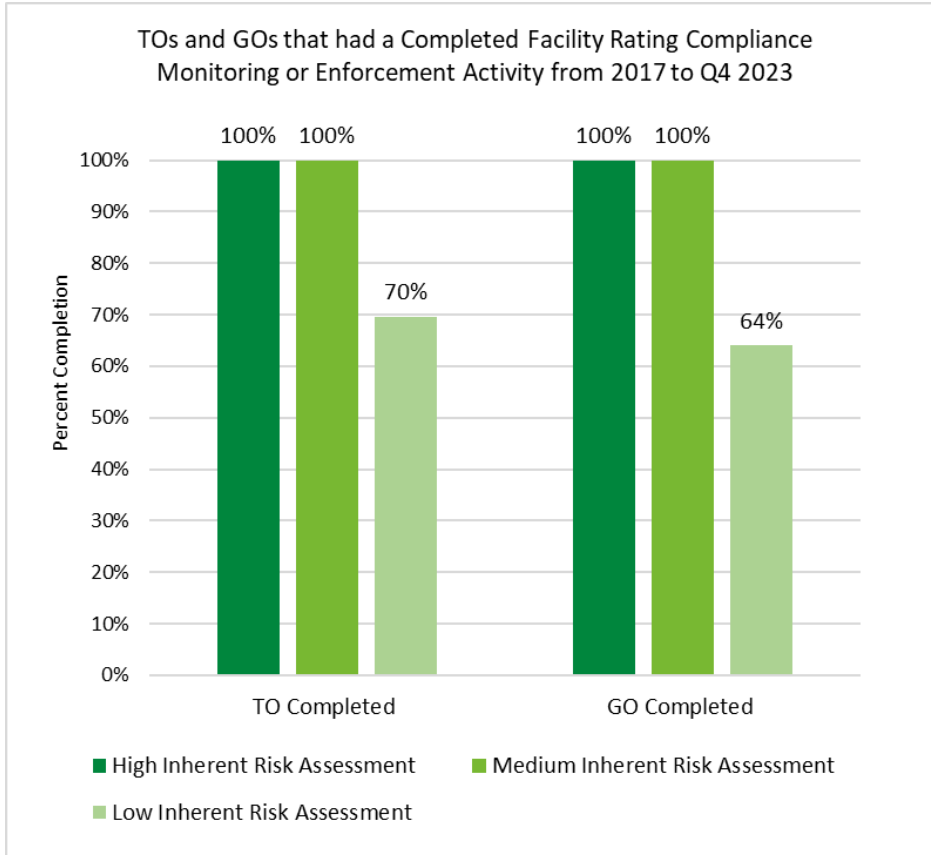
² ERO Enterprise Facility Ratings: Themes and Best Practices (May 24, 2023),

[https://www.nerc.com/pa/comp/CAOneStopShop/ERO Enterprise Facility Ratings Best Practices and Themes.pdf](https://www.nerc.com/pa/comp/CAOneStopShop/ERO%20Enterprise%20Facility%20Ratings%20Best%20Practices%20and%20Themes.pdf).

³ ERO Enterprise Themes and Best Practices for Sustaining Accurate Facility Ratings (Oct. 20, 2022), <https://www.nerc.com/comm/RSTC/Documents/ERO%20Enterprise%20Themes%20and%20Best%20Practices%20for%20Sustaining%20Accurate%20FR%20-%20Final%20-%20Oct-20-22.pdf>.

⁴ See, e.g., NERC, Facility Ratings Activities (Feb. 9, 2022), <https://www.nerc.com/gov/bot/BOTCC/Compliance%20Committee%202013/CC%20Open%20Meeting%20Presentations%20-%20February%209%202022.pdf>.

⁵ See, 2023 ORCP & CMEP Annual Report, at p. 6.



II. Executing Risk-Based Enforcement Activities

During the Assessment Period, the ERO Enterprise continued executing and refining risk-based enforcement activities. As noted above, NERC began the shift to risk-based CMEP in 2011 with streamlined methods to dispose of minimal risk non-compliance. The Commission has agreed that the Find, Fix, Track (“FFT”) program has “produced efficiencies in NERC’s processing of compliance and enforcement matters,” and that continuing to use the FFT program to address moderate risk noncompliance will result in a “more efficient enforcement process and allow NERC and the Regional Entities to focus on occurrences of severe risk violations.”⁶ Building on that success, the ERO Enterprise developed the Compliance Exception (“CE”) program in 2014. NERC’s CMEP has also focused on assessing registered entity internal controls as part of its risk-

⁶ *N. Am. Elec. Reliability Corp.*, Order on Compliance Filing, 148 FERC ¶ 61,214 at PP 1, 35 (2014).

based activities. The risk-based approach allows NERC and the Regional Entities to target efforts that can derive the most benefit in ensuring Bulk-Power System reliability and security. The approach allows the ERO Enterprise to adapt its activities to deter serious violations and promote sustainable practices. In implementing the risk-based approach to the CMEP, the ERO Enterprise has spent considerable time and effort to continually improve upon and harmonize its practices as detailed below.

a. Protecting BPS Security by Designating CIP Noncompliance as Critical Electric Infrastructure Information (“CEII”)

On September 23, 2020, FERC and NERC released the *Second Joint Staff White Paper on Notices of Penalty Pertaining to Violations of Critical Infrastructure Protection Reliability Standards*,⁷ which led NERC to cease public posting of redacted CIP noncompliance materials due to the risk associated with the disclosure of critical energy infrastructure information. Since the issuance of the white paper, NERC files or submits CIP noncompliance information with a request for confidentiality, and the Commission maintains confidentiality by designating the entire filing or submittal as Critical Energy/Electric Infrastructure Information. NERC continues to report CIP noncompliance statistics to the public in its quarterly and annual CMEP reports, which are available on NERC’s website.⁸

b. Evaluating the Effectiveness of Regional Entities in the Use of Risk-Based Enforcement

NERC’s oversight activities indicate that the Regional Entities are implementing risk-based enforcement according to program guidelines, and that efforts to improve alignment on

⁷ FERC and NERC, Second Joint Staff White Paper on Notices of Penalty Pertaining to Violations of Critical Infrastructure Protection Reliability Standards (Sept. 23, 2020), <https://www.ferc.gov/media/second-joint-staff-white-paper-notices-penalty-pertaining-violations-critical-infrastructure>.

⁸ CMEP and Vegetation Reports web site, <https://www.nerc.com/pa/comp/CE/Pages/CMEP%20and%20Vegetation%20Reports.aspx>.

various components of risk-based enforcement are successful. To better harmonize approaches across the Regional Entities and their respective footprints, ERO Enterprise enforcement staff regularly review case studies and analyze the facts of in-progress or recently resolved enforcement cases to discuss how each Regional Entity and NERC would approach similar cases. In addition, the ERO Enterprise regularly conducts enforcement calibration exercises in which hypothetical cases are examined to determine whether additional facts or information are needed to reach a conclusion regarding risk, mitigation activities, or penalty amounts. ERO Enterprise enforcement staff also participate in outreach events with registered entities and receive training at workshops to improve their knowledge and skills and ensure consistency across the ERO Enterprise.

NERC also conducts ongoing oversight activities for enforcement matters, with the level of such oversight varying based on the risk of the noncompliance and disposition method. For the CE and FFT disposition methods, NERC conducts a 60-day review as well as a joint annual FFT and CE review with Commission staff. The results of these reviews continue to indicate effectiveness of these disposition methods and Regional Entity processing. Commission staff acknowledged the continued appropriate implementation of the FFT and CE programs by the ERO Enterprise.⁹ For higher risk noncompliance resolved through the Spreadsheet Notice of Penalty and Notice of Penalty disposition methods, NERC Enforcement staff ensures consistency through layered reviews of all proposed Notice of Penalty penalties involving U.S. entities before settlement negotiations commence and again prior to filing with FERC. This ensures consistency

⁹ See FERC issuances for 2019 (*N. Am. Elec. Reliability Corp.*, Notice of Staff Review of Enforcement Programs, Docket No. RC11-6-009 (Aug. 12, 2019)); 2020 (*N. Am. Elec. Reliability Corp.*, Notice of Staff Review of Enforcement Programs, Docket No. RC11-6-010 (Sept. 14, 2020)); 2021 (*N. Am. Elec. Reliability Corp.*, Notice of Staff Review of Enforcement Programs, Docket No. RC11-6-012 (Aug. 24, 2021)); 2022 (*N. Am. Elec. Reliability Corp.*, Notice of Staff Review of Enforcement Programs, Docket No. RC11-6-013 (June 29, 2022)); and 2023 (*N. Am. Elec. Reliability Corp.*, Notice of Staff Review of Enforcement Programs, Docket No. RC11-6-015 (Sept. 11, 2023)).

in how each Regional Entity exercises its discretion when applying the NERC Sanction Guidelines to the facts and circumstances of each case.

c. Implementing Align and the Secure Evidence Locker

The Align tool consolidates core CMEP business processes on a single, secure platform to enhance the ERO Enterprise's ability to share and analyze data crucial to the security and reliability of the grid. NERC, Regional Entities, and registered entities use Align and the Secure Evidence Locker to conduct CMEP activities and manage related evidence. Through Align, CMEP activities occur on a consolidated platform that includes functionality related to Enforcement and Mitigation, Periodic Data Submittals, Technical Feasibility Exceptions, Self-Certifications, Audits and Spot Checks, Inherent Risk Assessment, and Compliance Oversight Plans. The Align tool eliminates the various processes and systems that could lead to inconsistency issues for monitoring compliance across the ERO Enterprise. The Secure Evidence Locker provides enhanced security in evidence collection via a NERC on-premises environment a NERC leased Tier 4 Data Center. Moreover, the Secure Evidence Locker supports effective data and information handling practices. This project reflects strategic efforts that began in 2014 with the goal of improving and standardizing processes across the ERO Enterprise.

In November 2017, NERC released its CMEP Technology Project Business Case. In 2021, Release 1 went live for Self-Reports, Enforcement, and Mitigation, followed by subsequent releases focused on compliance monitoring activities. In 2022, NERC began work on gathering requirements for Canadian provinces interested in using Align and the Secure Evidence Locker, with several provinces beginning to use both systems in 2023. In 2023, NERC migrated

information on closed noncompliance to Align, allowing the decommissioning of legacy systems at the Regional Entities.¹⁰

In terms of oversight on Align and Secure Evidence Locker, in April 2021, ERO Enterprise staff also presented at the annual CMEP Workshop regarding documenting work paper conclusions and feedback loops using Align and the Secure Evidence Locker. In April 2022, at the following annual CMEP Workshop, ERO Enterprise staff presented on the results from the Align oversight activity, noting that the information in Align conformed to the ERO Enterprise guidance for data confidentiality, while also highlighting improvement opportunities to ensure that sensitive information is submitted and stored solely in the Secure Evidence Locker.

d. Trends in Noncompliance During the Assessment Period

As noted above, the ERO Enterprise continues to implement a risk-based approach to processing noncompliance. During the Assessment Period, NERC observed several notable trends: (1) an increase in noncompliance reported to the ERO Enterprise, driven largely by the transition to Critical Infrastructure Protection (“CIP”) Versions 5 and 6 standards and newer Operations and Planning standards; and (2) outreach discussed above to raise industry awareness of discrepancies in Facility Ratings. These trends influenced NERC’s decision to increase efforts to raise industry awareness of newly enforceable Standards through outreach activities, including Small Group Advisory Sessions and ERO Enterprise lessons learned reports.

III. CMEP Rules of Procedure Revisions to Enhance Transparency in Penalty Determinations and Implement Other Programmatic Improvements

In response to the Commission’s January 23, 2020 Order on the 2019 Five-Year Performance Assessment, the ERO Enterprise proposed updates to the NERC Sanction Guidelines (Appendix 4B of the Rules of Procedure) to enhance the transparency of the penalty determination

¹⁰ See also, discussion regarding Align, SEL, and CORES in the attached filing, at Section IX.

process and address specific directives from the Commission. In the revisions to the Sanction Guidelines, the ERO Enterprise (1) explained how NERC or the Regional Entities determine the base penalty amount using the Violation Risk Factor (“VRF”) and Violation Severity Level (“VSL”); (2) described the potential ranges for the various factors used in increasing or decreasing the base monetary penalty amount; (3) described how non-monetary sanctions are considered when determining a final monetary penalty; (4) addressed how to assess a monetary penalty when dealing with multiple subsidiaries that commit the same violation; (5) addressed how to calculate a single penalty for multiple violations by a single entity; (6) addressed how to consider a violator’s ability to pay; and (7) made several other updates to reflect current practices of the ERO Enterprise and clarify other matters as appropriate. On January 19, 2021, the Commission approved the proposed revisions to the NERC Sanction Guidelines.¹¹

To focus on an effective and efficient CMEP, NERC also developed revisions reflecting maturation of the risk-based CMEP. Specifically, throughout Rules of Procedure Section 400 and Appendix 4C, the ERO Enterprise developed revisions to reflect one ERO Enterprise-wide CMEP rather than separate regional CMEPs, including revisions such as changing Compliance Enforcement Authority (“CEA”) to mean either NERC or the Regional Entity. To that end, there is now one single ERO Enterprise CMEP Implementation Plan issued each year that incorporates risk elements for consideration in oversight of registered entities. NERC also developed other revisions to refine the risk elements provisions to better reflect their use in CMEP activities today.

In addition, the CEA was granted more discretion in conducting audits, particularly in determining whether to conduct activities on-site for entities. Moreover, provisions detailing schedules for audits for entities other than Reliability Coordinators, Balancing Authorities, and

¹¹ *N. Am. Elec. Reliability Corp.*, Order on Compliance Filings, 174 FERC ¶ 61,030 (2021).

Transmission Operators were removed. The CEA also no longer needs to post an Annual Audit Plan (although it continues to provide schedules of planned audits to NERC, the Commission, and other applicable governmental authorities based on agreements in place); rather, the CEA gives registered entities 270 days' notice that an audit will occur. CEAs also provide notice with additional required information, such as audit team members, standards to be evaluated, and documents, data, and information requests.

There were also refinements to the self-certification and complaints processes. The CEA now provides 60-day notice of self-certifications rather than a schedule, and there is more flexibility to initiate self-certifications as needed. The complaint provisions clarify that NERC, and the Regional Entities can share the identity of anonymous submitters with each other but not with third parties.¹² These enhancements improved efficient and consistent execution of CMEP activities while allowing room for regional discretion in a manner that recognizes regional differences.

¹² There are other updates throughout Appendix 4C and Section 400 that streamline the efficiency of the ROP and align the language with current risk-based CMEP practice. For instance, throughout, the term "Possible Violations" have been replaced with "noncompliance." Provisions relating to NERC or Regional Entity compliance with Reliability Standards were removed as there are currently no applicable requirements. References to Confidential Information were streamlined and refer to Section 1500 where possible.

Appendix C

Electricity Information Sharing and Analysis Center (“E-ISAC”) Program Refinements

As detailed in the *2023 E-ISAC End of Year Report*, the E-ISAC worked with its nearly 1,800 member and partner organizations to ensure that the electric industry has the tools to address the myriad of security challenges facing industry and the Bulk Power System (“BPS”).¹ As highlighted, the E-ISAC, working with its member and partner organizations, including U.S. and Canadian government partners, as well as with expertise gained through initiatives like the Vendor Affiliate Program, has made significant progress in keeping industry ahead of the threat curve. This Appendix provides: (1) an overview of recent threats the E-ISAC has monitored and actions taken to address them; and (2) E-ISAC services and products available for members and partners.

I. Ensuring Security in a Changing Geopolitical Environment

The E-ISAC’s efforts throughout the Assessment Period reflect its activities in coordination with industry and government partners to address significant security threats to the energy sector in an evolving geopolitical environment. These efforts are highlighted by its response to the Russian invasion of Ukraine in 2022, the increasing threats posed by China in recent years (including Volt Typhoon and other campaigns), and the grid-impacting physical security events that took place in late 2022 and early 2023. These efforts demonstrate the E-ISAC’s capabilities as they relate to real-time threat identification and mitigation, and later analysis to prevent further risk.

The 2022 Russian invasion of Ukraine targeted civilian energy infrastructure and made strategic use of cyber and physical tactics. Russia openly threatened the United States’ interests multiple times throughout 2022 due to U.S. sanctions and U.S. aid to Ukraine. While the BPS was

¹ 2023 E-ISAC End of Year Report, <https://www.eisac.com/s/>.

not affected directly, the E-ISAC and its U.S., Canadian, and international partners remained on high alert for threats. Already a formidable cyber threat, Russia has also shown the willingness to target physical infrastructure as well as cyber assets. In response to this threat, the E-ISAC issued a “lessons learned” report concerning Russian cyber operations, and developed in partnership with other experts a version of ICS SHIELDS UP for the electric industry. Cyberthreats tracked included, for example, those by APT29 targeting cloud environments. The E-ISAC also worked with the U.S. Department of Energy’s Energy Threat Analysis Center (“ETAC”) pilot partners to provide industry context to the U.S. government, and shared regular updates from the Cybersecurity Risk Information Sharing Program (“CRISP”)² on Russian activities targeting the electric industry.

In addition, China has become an active and persistent cyber espionage threat to U.S. government and private sector networks according to the U.S. and Canadian intelligence communities. China’s capabilities and intent have changed, growing from intellectual property theft to being able to conduct aggressive cyber operations against the U.S. homeland. The activities by Volt Typhoon, which targeted U.S. utilities by conducting aggressive reconnaissance about infrastructure, are a recent example of China’s current cyber capabilities. In 2023, the E-ISAC kept industry informed of various China-linked cyber activities with bulletin updates on the E-ISAC Portal and shared regular updates from CRISP on China-linked activities targeting the electric industry. The E-ISAC also issued all-points bulletins on the exploitation of VMWare ESIX Hypervisors, a critical security segmentation tool attributed to China-linked actors.

² CRISP leverages advanced technology and industry expertise to provide its participants with near real-time delivery of relevant and actionable threat information of their informational technology (“IT”) networks. CRISP is a public-private partnership between the E-ISAC and the Department of Energy (“DOE”). CRISP collects data through information sharing devices (“ISD”) installed on participants’ networks. Data collected through CRISP is used to identify cyber threat actors, pinpoint emerging trends, and analyze correlations across the sector. The bidirectional information sharing between electricity utilities and the DOE enables CRISP analysts to develop a comprehensive cyber threat landscape of the sector. *See*, CRISP webpage, <https://www.eisac.com/s/crisp>.

The E-ISAC also regularly monitored and coordinated mitigation strategies on ransomware attacks, helping its members stay current on ransomware threats through its *Weekly Cybercrime Forum and Ransomware Report* and All-Points Bulletins. Most recently, the E-ISAC has been tracking other vulnerabilities, such as Citrix Bleed and Rapid Reset; monitoring threat activity associated with the Israeli/Hamas war; and tracking activities associated with ransomware.

The E-ISAC also focused on physical security during the Assessment Period. Beginning in September 2022 and continuing into 2023, the E-ISAC tracked a consistent increase in grid-impacting physical security incidents on substations in the pacific northwest and southeast sections of the United States that involved vandalism, tampering, arson, and ballistic damage. While the incidents did not impact the BPS, local power disruptions did occur and affected customers. In response to this threat, the E-ISAC alerted industry and government partners of increasing activity, released All-Points Bulletins alerting E-ISAC Portal users about ongoing attacks against electric infrastructure, and coordinated a webinar in December 2022 to provide an update on the situation. Further, the E-ISAC coordinated with industry and government partners to host a physical security workshop focused on the threats to industry and protective measures organizations may implement. Briefings were also shared with industry in public forums such as the Reliability and Security Technical Committee informational sessions.³

II. Information Sharing

As discussed in previous Performance Assessments, the E-ISAC provides its member utilities and partners with resources to prepare for and reduce cyber and physical security threats to the North American electricity industry. NERC has long recognized the importance of robust information sharing between the E-ISAC and electricity industry participants to enhance industry's

³ See, e.g., RSTC Informational Session Agenda - March 13, 2024, https://www.nerc.com/comm/RSTC/AgendaHighlightsandMinutes/RSTC_Info_Session_Agenda_March2024.pdf.

situational awareness and ability to prepare for and respond to cyber and physical security threats, vulnerabilities, and incidents. The E-ISAC meets regularly with NERC staff on projects, including inverter-based resources (“IBRs”) and cyber-informed transmission planning. The E-ISAC also meets quarterly with Commission staff to share threats, metrics, and programmatic updates. The following section includes ways in which the E-ISAC shares and receives information, and highlights services the E-ISAC makes available to its members and partners.

a. Voluntary Information Sharing by Stakeholders

The E-ISAC’s nearly 1,800 member and partner organizations share information with the E-ISAC to best fit the needs of industry.⁴ The E-ISAC operates under the concept of originator control: the individual or entity sharing the information determines with whom the information is shared. Information that members share through the E-ISAC Portal may also be posted at any level of attribution – anonymous, some attribution, or full attribution. In addition to joining information sharing programs like CRISP, E-ISAC members and partners can use different methods to share information with the E-ISAC and each other, including via the secure E-ISAC Portal; emailing the E-ISAC team directly; sending information in bulk data form; or contacting the E-ISAC by phone. The E-ISAC then collaborates with industry, either by following up directly on an incident shared via the Portal or by asking permission to post information that members share. In 2023, the E-ISAC received an average of approximately 45 cyber member shares and about 192 physical member shares each month.

⁴ In 2023, the E-ISAC saw a 9.2% increase in organizational membership growth and a 19.3% increase in individual Portal users. In the third quarter of 2023, 433 individuals were granted Portal accounts. This includes the addition of 43 new organizations.

b. Weekly Reports

To streamline and optimize the information shared on the Portal, the E-ISAC recently began compiling non-urgent content shared on the Portal and posting a weekly “wrap up” report. These reports contain a comprehensive weekly summary of E-ISAC member and partner posts that were voluntarily shared with the E-ISAC. Any time-sensitive and critical posts are shared on the E-ISAC Portal on a real-time basis. This weekly report provides consolidated, comprehensive, and digestible information that eliminates excessive notifications and provides targeted informational support and analysis in a consistent and repeatable manner.

c. Automated Information Sharing

The E-ISAC also recently consolidated automated information sharing capabilities by implementing a new cyber threat intelligence platform. The platform will increase the speed and coverage of cyber indicators and bulletin feeds that members can automatically pull into their own threat intelligence and cyber defense tools. Members can now leverage a single TAXII-based, automated feed for E-ISAC security bulletins and indicators. These changes are part of the next generation Electricity Sector Security Information eXchange platform and a key accomplishment under the E-ISAC long-term strategy. Currently, 32 organizations have adopted the feeds.

d. Monthly Threat Briefings for ERO Enterprise and Regulatory Personnel

As an update to the information provided in the last Performance Assessment proceeding regarding E-ISAC coordination with Reliability Standards development, in 2023 the E-ISAC started hosting monthly threat briefings for NERC Reliability Standards development personnel, Compliance Monitoring and Enforcement Program (“CMEP”) personnel across the ERO Enterprise, and state and provincial regulators across North America. The purpose of these briefings is to expand information sharing more broadly across the ERO Enterprise and in a manner

consistent with the E-ISAC Code of Conduct. Information exchanged during these briefings is aggregated and anonymized, and focuses on cyber and physical threats and impacts that are shared with, observed, and analyzed by E-ISAC staff. This information and its observations are designed to increase situational awareness across the ERO Enterprise to help inform program areas for emerging security threats and vulnerabilities.

In addition to monthly threat briefings, the E-ISAC participates in monthly discussions with the NERC Operations Leadership Team to discuss physical and cyber threats to industry. The E-ISAC also manages the Regional Security Analysis Group, which consists of non-CMEP representatives across the ERO Enterprise. The group meets monthly to discuss physical and cyber security threats, solutions, and best practices.

e. Information Sharing with FERC/Government Agencies and Industry

As noted above, under the principles of originator control, the individual or organization posting information to the E-ISAC Portal determines with whom the information will be shared. The E-ISAC makes every effort to share information as broadly as possible, and regularly shares information that is aggregated and anonymized, or where the originator explicitly authorized the E-ISAC to share the information with attribution. The E-ISAC Code of Conduct, coupled with originator control, impacts how much and with whom the E-ISAC shares information. The E-ISAC limits distribution of information that it does not have permission to share.

Specific to FERC, the Commission has 42 active E-ISAC Portal accounts. These FERC Portal users can access information shared with their account, as well as share their own threat information and updates to the Portal. FERC Portal users receive bulletins and reports from the E-ISAC, including All-Points Bulletins and the E-ISAC Monthly Report.

III. E-ISAC Activities

a. VISA Workshops

The E-ISAC began hosting Vulnerability of Integrated Security Analysis (“VISA”) workshops in 2018 to promote the physical security of critical infrastructure. The E-ISAC conducted seven VISA workshops in 2023 and plans to conduct another seven workshops in 2024. The VISA methodology is one of many vulnerability assessment tools that use a specific design basis threat to determine the overall system effectiveness of an integrated physical protection system.

These VISA workshops focus on teaching the Design Basis Threat (“DBT”) methodology, which was built to assist asset owners and operators in assessing the physical security of BPS infrastructure. The electricity DBT tailors those threat considerations to the electric industry to assess the physical security of BPS infrastructure based on current reasonable and credible threat considerations. The DBT and VISA methodology and workshops are valuable mitigation strategies that lead to enhanced physical security upgrades. Most utilities that attend a workshop reported at least one upgrade in either process or protective measure implemented within six months after attending a workshop.

b. Physical Security Regional Workshops

In response to the December 2022 Moore County substation attacks, the E-ISAC partnered with industry stakeholders to host a Physical Security Regional Workshop in Charlotte, NC, in October 2023. This was the first in a series of Physical Security Regional Workshops. Over 100 participants from utilities across the SERC region, as well as local law enforcement agencies participated in the workshop. Panels included a discussion of the attacks by local utility and law enforcement officials, a panel on the threat landscape, a presentation from the Charlotte FBI field

office on evidence collection, and panels on mitigation strategies and policy implications. The E-ISAC anticipates holding several more of these workshops in 2024 across the United States.

c. Physical Security Resource Guide

To remain vigilant against physical attacks affecting the North American electric grid, the E-ISAC developed a non-public physical security resource guide to provide a comprehensive overview of existing resources related to physical security risk mitigation options for electricity asset owners and operators, including executives and site managers. Since a variety of high-level documents offering comprehensive guidelines already exist, the goal of the resource guide is to provide a general framework for the risk-management process and an anthology of resources that asset owners and operators can employ to help mitigate risks associated with various physical threats.

d. GridSecCon

Since the last Performance Assessment, the E-ISAC continued to hold its annual grid security conference, known as GridSecCon. Most recently, the E-ISAC and NPCC co-hosted GridSecCon 2023 on October 17–20 in Québec City, Canada. More than 600 individuals registered, representing a cross-section of industry and government partners from across North America. The event was sponsored by 25 organizations and featured training opportunities, keynote addresses, breakout sessions, and networking events. Topics focused on current cyber and physical threats, violent extremists, and software supply chain security. GridSecCon 2024 will be co-hosted by MRO and take place the week of October 21, 2024 in Minneapolis, MN.

e. GridEx VII

The E-ISAC has also continued to hold its biennial grid security exercise, known as GridEx. Most recently on November 14-15, 2023, the E-ISAC held GridEx VII Distributed Play, with more than 250 organizations. The GridEx VII Executive Tabletop was held on November 16,

2023 and was conducted in a similar fashion to GridEx VI, building on the success with the virtual participation while adding an in-person group at the NERC office in DC. GridEx VII’s Tabletop scenario focused on impacts on the midwestern United States and the prairie provinces in Canada. The GridEx VII Executive Tabletop scenario built on the themes covered in Distributed Play. Attendees included scenario-impacted utilities, partners from the Electricity Subsector Coordinating Council and the Energy Government Coordinating Council, several cross-sector partners including trade associations and companies from other critical infrastructure sectors.

f. Industry Engagement Program

The E-ISAC continues to host Industry Engagement Program (“IEP”) sessions for various audiences. IEPs provide E-ISAC members and partners with a view into E-ISAC information sharing processes, products, programs, and people by hosting small cohorts of members and partners in interactive discussions. In 2023, the E-ISAC hosted six IEPs, including three multi-week IEPs, one IEP for new members, one IEP for Vendor Affiliate Program partners, and one in-person IEP for members from joint action agencies, generation and transmission cooperatives, and RTOs/ISOs. In total, 155 individuals participated in an IEP in 2023, representing 109 asset owner and operator member organizations and five vendor partner organizations. The E-ISAC will continue to put emphasis on customer experience, explore journey mapping, and use engagement dashboards to further enrich and provide value to the E-ISAC membership experience.

g. Vendor Affiliate Program

The E-ISAC launched its Vendor Affiliate Program (“VAP”) in late 2022. The program is focused on facilitating information sharing and best practices in a trusted environment between electricity sector participants and their vendor community. As the threat landscape continues to evolve, the E-ISAC recognizes the increased interdependencies and complexities in the supply chain between vendors and its industry members.

As of the third quarter of 2023, the Vendor Affiliate Program has grown to 12 vendor companies, including: 1898 & Co, Axio, Dragos, Finite State, Fortinet, Hitachi, Itron, Nozomi Networks, Sargent & Lundy, Schweitzer Engineering Laboratories, Siemens Energy, and Google Cloud. Vendors receive the Monthly Insider VAP newsletter and participate in Quarterly Forums with E-ISAC staff. In September, the program launched the Vendor Affiliate Working Group, which was formed to facilitate thought leadership among vendor partners and to address risk mitigation strategies and best practices to inform future products or discussions that would benefit E-ISAC member utilities.

h. CRISP

Since the 2019 Performance Assessment, NERC has continued to expand CRISP. CRISP is a voluntary program administered by the E-ISAC in which it partners with the Department of Energy and its Pacific Northwest National Laboratory to leverage advanced technology and industry expertise to provide its participants with near real-time delivery of relevant and actionable threat information of their information technology (“IT”) networks. The program is open to asset owners and operators in the electricity, oil, and natural gas sectors. CRISP collects data through information sharing devices installed on participants’ networks and uses this data to identify and analyze threat actors and risk trends across the sector. The bidirectional information sharing enables CRISP analysts to develop a comprehensive cyber threat landscape and offer participants unique insights for monitoring and distributing threat intelligence, understanding threat actor motivations and intent, and producing actionable and informed reporting. In 2021, the E-ISAC compared CRISP with data from sensors on operational technology networks in two pilot programs – one with the National Rural Electric Cooperative Association and the other with Dragos. These projects gave E-ISAC analysts greater capability to analyze data and identify trends. These

capabilities continued into 2023 and underscore the importance of collective defense and threat intelligence sharing.

i. Energy Threat and Analysis Center

To further enhance cross-sector interdependencies in the energy industry, in 2022 the E-ISAC joined the U.S. Department of Energy’s Energy Threat Analysis Center (“ETAC”) pilot, which is designed as a new venue to review and exchange intelligence and share information within the energy sector. ETAC also serves as a link to the Joint Cyber Defense Collaborative hub at the Cybersecurity and Infrastructure Security Agency to ensure collaboration between energy and other critical infrastructure sectors.⁵ As the primary security communications channel for the electric industry, the E-ISAC serves reliability, resilience, and security.

⁵ NERC 2022 Annual Report (Feb. 2023), [https://www.nerc.com/gov/Annual Reports/NERC_Annual Report_2022.pdf](https://www.nerc.com/gov/Annual%20Reports/NERC_Annual_Report_2022.pdf).

Appendix D

NERC’s Internal Audit Update on Status of Management Action Plans under 2023 Appendix 4A Audits

As summarized in Section III of this filing, NERC’s Internal Audit performed audits of the Regional Entities consistent with Appendix 4A of the NERC Rules of Procedure and provided the audit reports of all six Regional Entities to the Commission in the 2023 Audit Filing.¹ Within the compliance filing, NERC submitted progress of the Regional Entities’ Management Action Plans (“MAPs”) that resulted from NERC Internal Audit recommendations.² NERC’s Internal Audit subsequently conducted its follow up process to track completion of MAPs. On a quarterly basis, NERC’s Internal Audit provides a status update on the MAPs to NERC’s executive management and the Enterprise-wide Risk Committee (“EWRC”) until all MAPs are effectively implemented by management and independently confirmed through testing procedure. This quarterly update includes the 4A Regional Entity audits, and audits of individual NERC programs (i.e., the Compliance Monitoring and Enforcement Program, NERC Organization Registration and Certification Program, and Reliability Standards development).

As of January 2024, NERC’s Internal Audit confirmed the closure of all 32 4A Regional Entity MAPs summarized in the table below (by each Regional Entity).³ Further, NERC’s Internal

¹ NERC, *Compliance Filing of NERC in Response to the Order on Compliance Filings*, Docket No. RR19-7-001 (June 30, 2023).

² *See id.* at pp. 6-8.

³ While all Regional Entity MAPs have been completed, some MAPs also have a NERC component that either requires a NERC MAP or NERC conducting follow up oversight activities. In addition, some Regional Entity MAPs were marked “Pass Further Review” in their disposition. Pass further review is an audit review disposition commonly utilized by auditors when evaluating the effectiveness of management’s internal control(s) or related processes. Pass further review indicates that the auditor has independently and objectively evaluated the current internal control and/or activity through the performance of standard audit procedures, however, may have noted additional relevant information or process or program changes that should be considered in their evaluation. Based on past and current facts and circumstances that have evolved since the initial audit, performance of procedures, management process changes, management assertions, etc. the auditor may need to perform additional review at another time. This information may be subject to additional quality reviews by supervising audit personnel, pending or in process control activities that may be dependent upon other control owners, and/or deferred to a future audit engagement to evaluate overall adequacy and effectiveness.

Audit recommended the NERC Compliance Assurance and Enforcement staff continue to monitor sustainability of processes, controls, and compliance with program activities through active oversight and report periodically to the Regulatory Oversight Committee on program effectiveness and improvements.

MRO

Regional Entity/CMEP Scope Area		Observation/Audit Issue	Management Action Plan (MAP) Summary	Closed (Y/N)	Pass Further Review*
MRO	Training	Enhance processes to ensure CMEP staff receive the appropriate training and learning programs timely	Identify staff required for training. Create process to track training to completion. Implement process to verify completion.	Y	
	Risk Assessment	Develop Inherent Risk Assessments (IRA) and Compliance Oversight Plans (COP) for all registered entities to support risk-based CMEP	Incorporate a schedule to complete/updates all IRAs into a unified IRA/COP process.	Y	
	Compliance Oversight Plans (COPs)	Develop COPs consistently across all registered entities	Develop a COP process for low inherent risk entities. Develop a schedule to complete all COPs.	Y	
	Monitoring Tools: Compliance Audit Plan/Scoping	Apply audit planning and scoping methodology holistically and consistently	Develop guidance and tools for use in approval of audit scoping. Develop long term planning methodology (i.e. 5+ years)	Y	
	Monitoring Tools: Self Logging	Administer the Self-Logging Program consistent with the objectives of the monitoring tool and Rules of Procedure	Review program requirements and refresh for consistency with NERC and the six Regions. Update and implement internal procedures based on program requirements.	Y	Y
	Monitoring Tools: Periodic Data Submittals	Provide periodic data submittals in accordance with established schedules	Consolidate PDS program into one department. Update tools and procedures to ensure performance and consistency.	Y	

* MAP relies on completion of NERC oversight activity and programmatic changes resulting from self-logging program review with the six Regional Entities.

NPCC

Regional Entity/CMEP Scope Area	Observation/Audit Issue	Management Action Plan (MAP) Summary	Closed (Y/N)	Pass Further Review* and **
NPCC	Enforcement	Open Enforcement Actions (OEA) are not processed timely to address risk of noncompliance with the appropriate disposition and action	Y	Y*
	Monitoring Tools: Compliance Audits	Compliance Audits are not completed timely and/or within the calendar year of the audit plan.	Y	Y**
	Compliance Oversight Plans (COPs)	COPs have not been developed for the majority of registered entities within the footprint and IRA/COP process lacks flexibility to fully support a risk-based approach	Y	Y**
	Compliance Oversight Plans (COPs)	Compliance audit scope is not consistent with Reliability Standards identified in the IRA/COP	Y	Y**
	Risk Assessment	Periodic risk assessments are not performed with registered entities to support annual audit planning.	Y	
	Risk Assessment	Annual audit planning is not formally documented with support of entity risk assessment factors to ensure coverage of relevant risks and related reliability standards	Y	Y**
	Policies and Procedures	CMEP policies and procedures have not been developed or updated	Y	

Appendix D – Internal Audits

NPCC – con' t	Compliance Monitoring	Current risk assessment and audit planning processes do not address two-year gap with the execution of CIP-014 audits due to pandemic conditions	NPCC is including CIP-014 in remote and onsite TO/TOP audits in 2022. Onsite audits will include CIP-014 in scope effective October 2022.	Y	
	Compliance Monitoring	A self-certification approach is applied during the planning and execution of off-site audits	NPCC has incorporated interviews into off-site audit procedures.	Y	
	Governance	A process outline does not exist to support and assist employees with understanding and execution of the Conflict of Interest (COI) policy	The COI policy and annual questionnaire will be reviewed. Edits will be made and/or a procedure developed to assist staff with understanding and executing the COI policy.	Y	
	Risk Assessment	Audit work programs are not consistently developed to assess an entity's internal controls prior to the start of audit Fieldwork per NERC guidance and audit standards	NPCC began using the NERC recommended Internal Control Assessment Template (ICAT) in 2022 and will improve their proficiency in applying the results and retention of the controls assessments.	Y	Y**

* Reliance on management assertion that backlog was addressed and staffing resources were added. Additional staffing resources are expected to be added in 2025. Subsequent quarterly reporting to the NERC Board identified issues with sustainability of controls to address timeliness of noncompliance processing.

** MAP relies on programmatic changes resulting from review with NERC and the other six Regional Entities.

ReliabilityFirst

Regional Entity/CMEP Scope Area	Observation/Audit Issue	Management Action Plan (MAP) Summary	Closed (Y/N)	Pass Further Review*
ReliabilityFirst	Monitoring Tools: Self-Logging Self-Logged PNCs are not reported in a timely manner	Management response provided; no remediation required per management.	NA	Y
	Compliance Oversight Plans (COPs) Lack of an ERO Enterprise-wide IRA/COP methodology to determine registered entity risk rating and consequent monitoring frequency	Management response provided; no remediation required per management.	NA	Y
	Monitoring Tools and Processes Lack of communication for reliability standards included in the audit scope which were not in the COP	Management response provided; no remediation required per management.	NA	Y

*MAP not provided by management as deemed of historical nature and/or otherwise remediated. Internal Audit deferred assertion to NERC oversight to confirm programmatic enhancements and requirements through future activities and evidence.

SERC

Regional Entity/CMEP Scope Area	Observation/Audit Issue	Management Action Plan (MAP) Summary	Closed (Y/N)	Pass Further Review*
SERC Training	CMEP staff auditor training was not monitored for timely completion	Enhance processes to validate that new hires are assigned the appropriate training and that the training is completed in the appropriate timeframe, including prior to assigning them as a member of an audit team	Y	
SERC Training	Training and learning program process documentation for CMEP staff is not formalized	Develop and maintain process documentation for CMEP training program that includes a tracking mechanism to validate individual employee progress	Y	
SERC Conflict of Interest (COI)	COI process was not consistently applied to Industry Subject Matter Experts (ISME)	Enhance processes to validate that an ISME completes a COI form prior to participating in each audit engagement they are assigned.	Y	
SERC Risk Assessment	IRA-ERP-COP inconsistencies identified in peer review process	Review and enhance process documentation to provide clarity on peer review expectations and validation of completeness.	Y	
SERC Monitoring Tools: COP/Internal Controls	Evaluations of Internal Controls lacked consistency	Evaluate programmatic changes which will include: identification of entities with weak/no internal controls, increase awareness and guide entities and evaluate for consistent application.	Y	

Texas RE

Regional Entity/CMEP Scope Area	Observation/Audit Issue	Management Action Plan (MAP) Summary	Closed (Y/N)	Pass Further Review*
TEXAS RE	Risk Assessment Exclusion of relevant CMEP IP Risk Element Standards and Requirements from Entities' Compliance Oversight Plans was not justified or supported through documented rationale	Adopt process enhancements to improve Texas RE's documented justifications when it elects to exclude the Requirements associated with applicable Risk Elements from Appendix B of the registered entity's COP.	Y	
	Compliance Oversight Plans (COPs) Adherence to local policy for COP development is not followed	Implement a risk-based schedule for revising COPs to use current ERO COP template. A risk- based schedule anticipates Texas RE will refresh the COP for the registered entity at issue to reflect the most current facts and circumstances in advance of the registered entity's next scheduled compliance engagement.	Y	
	Compliance Monitoring Conduct Compliance Monitoring Intervals for Low- Risk Registered Entities	Adopt process improvements to ensure clear, documented justifications of monitoring intervals for lower-risk entities; including a periodic reassessment of the justification during the period of compliance engagements in situations where we elected to extend entity intervals, including a reassessment of the entity's overall Compliance Oversight Plan	Y	

WECC

Regional Entity/CMEP Scope Area	Observation/Audit Issue	Management Action Plan (MAP) Summary	Closed (Y/N)	Pass Further Review*
WECC Training	Enhance processes to ensure CMEP staff receive the appropriate training and learning programs timely	We will update our Personnel Tracking Sheet to reconcile dates of completed training and ensure evidence of training is archived and available. We will document a process for quarterly review of training records. The process will identify roles, responsibilities, and controls, used to ensure quarterly reviews are in place.	Y	
WECC Compliance Monitoring: Self-Certification process	Identify, Assess and Record Potential Non-Compliance (PNC) timely by performing Preliminary Screen and Determining Disposition	The three registered entities identified have been addressed. we have developed a procedure providing guidance to the Entity Monitoring team around roles and responsibilities for Self-Certifications, including steps in review of Registered Entity submittal, how to address potential non-compliance and closure of the engagement.	Y	
WECC Risk Assessment	Develop and Refresh Inherent Risk Assessments and Compliance Oversight Plans within a Standard Periodicity to Support Consistent Oversight Strategy	Modify the Entity Risk Profile Tool, add items to quality control checklist, process change in IRA_COP Milestones and Assignments Tracker, Update WECC Risk Based Monitoring Planner tool	Y	
WECC Complaints and Investigations	Evidence Sufficient Initial Review, Assessment and Final Disposition of Complaints	Workflow issue have been corrected include alerts. Complaint process has been updated to maintain documentation including appropriate reviews.	Y	

Appendix E

Stakeholder Comments on the Five-Year Electric Reliability Organization Performance Assessment

EEI Comments

Five-Year Electric Reliability Organization Performance Assessment

April 30, 2024

EEI appreciates the opportunity to provide feedback on the proposed draft of the five-year Electric Reliability Organization (ERO) Performance Assessment.

Five-Year ERO Performance Assessment

- Generally, the draft assessment includes insight into steps taken by NERC to demonstrate how it continues to satisfy statutory and regulatory criteria for certification as an ERO.
- **Page 6, Section I:** NERC states “the ERO Enterprise and stakeholders revised the Standards development process under the Standard Processes Manual (SPM) and Rules of Procedure (ROP)” ...” However, stakeholders do not revise the ROP. NERC does and then solicits input from industry. Accordingly, please consider revising the foregoing statement as follows: “the ERO Enterprise, in accordance with Section 1400 of the NERC Rules of Procedure, revised the Standards development process...”
- **Page 9, Section I:** NERC states that it has “further ramped up outreach to bring interested stakeholders into the discussion” on challenges faced under the modern grid and extreme weather; however, the outreach examples provided throughout the assessment focus on existing stakeholders, state regulators, and federal agencies. Please consider including examples of outreach to owners and operators of non-BES IBRs that, in aggregate, will materially impact the reliability of the BES, be required to register with NERC because of modifications to the Registry Criteria under the Rules of Procedure (ROP), become subject to Reliability Standards.
- **Pages 18-19, Section IV, Part A:** NERC includes a list of Reliability Standards projects expected to be completed in 2024 but does not include Internal Network Security Monitoring. The list of projects included should reflect the high-priority Reliability Standards projects in alignment with NERC’s prioritization methodology.
- **Page 21, Section V:** NERC emphasizes its efforts to harmonize internal and external CMEP processes to promote a risk-based approach to compliance.
 - The harmonization of CMEP processes is a work in progress. Industry is still seeing differences in the execution of the CMEP.
 - NERC has the ability to leverage guided self-certifications and spot checks. It would be helpful if the performance assessment explored the use and value of those alternatives to full on-site audit engagements in the performance assessment.
- **Page 29, Section VII:** The language in this section describes the streamlining of several internal committees, which directly impacts performance for NERC and the ERO Enterprise as a whole. There should be depictions of the previous structure against

today's structure to illustrate the significance of those changes given their stated relevance to performance.

- **Page 45, Section IX:** Please clarify how introducing an innovative workforce model reduces enterprise-wide business risk. Footnote 94 delineates the workforce model and describes the benefits as greater flexibility, better work-life balance, and new technologies that ensure employee engagement and connection, but it is unclear what enterprise-wide business risks are addressed by the model.
- **Page 46, Section IX, Part A:** NERC states that the “SEL provides enhanced security in evidence collection via an on-premises environment at NERC and supports consistent data and information handling practices.” Please revise to clarify that the SEL is not in an on-premises environment at NERC, but NERC uses a leased Tier 4 Data Center for the SEL.