NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Electric Reliability Organization Enterprise Operating Plan

Approved by the NERC Board of Trustees:
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RELIABILITY | ACCOUNTABILITY




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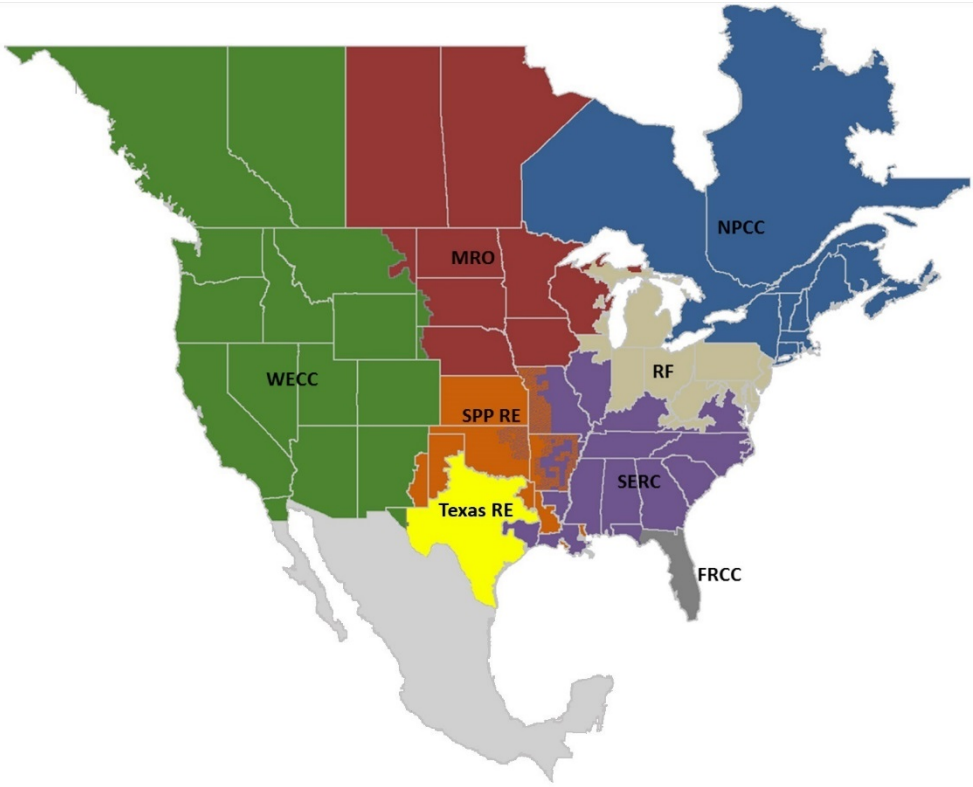
Table of Contents

Preface

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

The North American BPS is divided into eight RE boundaries as shown in the map and corresponding table below.



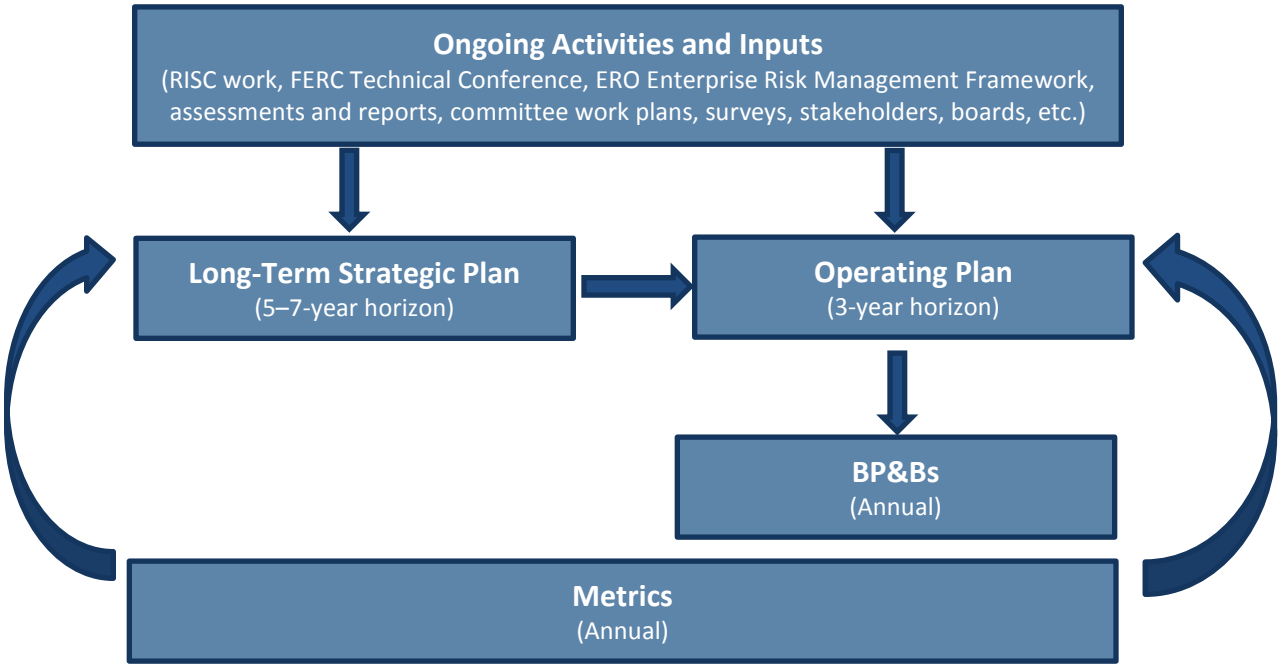
The North American BPS is divided into eight RE boundaries. The highlighted areas denote overlap as some load-serving entities participate in one Region while associated transmission owners/operators participate in another.

FRCC	Florida Reliability Coordinating Council
MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
SPP RE	Southwest Power Pool Regional Entity
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

Introduction

The ERO Enterprise's strategic and operational planning process is informed by ongoing activities to identify (1) BPS reliability risks, particularly the Reliability Issues Steering Committee's (RISC's) biennial reliability leadership summit and *ERO Reliability Risk Priorities Report*[1] (RISC report), and (2) opportunities to improve ERO Enterprise effectiveness and efficiency. The transparent and collaborative process includes input from stakeholders[2], the NERC Board of Trustees (NERC Board), and Regional Entity boards. These inputs are used by ERO Enterprise leadership to inform the following strategic and operational planning components:

- **ERO Enterprise Long-Term Strategy** – The long-term strategy discusses key challenges and strategic focus areas for the ERO Enterprise over the next five to seven years. The long-term strategy is reviewed on a periodic basis to identify any needed adjustments.
- **ERO Enterprise Operating Plan** – Guided by the long-term strategy, the operating plan identifies the ERO Enterprise's vision, mission, core principals, and goals, and provides a list of key contributing activities[3] by the combined ERO Enterprise, NERC, and the Regional Entities as applicable to inform a rolling three-year operational planning horizon. The operating plan is reviewed biennially[4] and updated as needed.
- **ERO Enterprise Business Plans and Budgets (BP&Bs)** – BP&Bs set the specific annual activities, resources, and resource allocation in support of the goals and objectives in the operating plan. BP&Bs are prepared, reviewed, and approved annually for NERC and each of the Regional Entities.
- **ERO Enterprise Metrics** – The metrics include measures, thresholds, and targets to provide indicators of BPS reliability and security as well as ERO Enterprise effectiveness and efficiency. The metrics are reviewed annually and updated as needed to ensure they meaningfully inform near and long-term priorities[5].



[1] ERO Reliability Risk Priorities Report (Board Accepted February 8, 2018)

[2] This includes input from the RISC, Members Representatives Committee (MRC), NERC standing and technical committees, trade associations and industry forums, as well as public comment periods.

[3] Activities that are recommendations from the RISC report are labeled accordingly.

[4] The operating plan is reviewed same year the RISC reviews and updates its report.

[5] Each ERO Enterprise entity establishes additional metrics to support performance-based compensation programs. These metrics typically measure achievement of specific objectives, tasks, and activities on a departmental or company-wide basis for the operating year.

Vision, Mission, and Principles

Vision
A highly reliable and secure North American bulk power system.

Mission
To assure effective and efficient reduction of risks to the reliability and security of the bulk power system.

Goals
The ERO Enterprise has six goals[6], each of which is supported by key contributing activities by the combined ERO Enterprise, NERC, and the Regional Entities as applicable. The majority of ERO Enterprise resources and activities in support of these goals will focus on preserving and building on current achievements toward establishing risk-based controls to minimize BPS reliability risk while also driving enterprise-wide operational efficiency and effectiveness. Remaining ERO Enterprise activities and resources will focus on identifying, evaluating, and addressing new and emerging issues affecting BPS reliability and security and improving communication strategies, knowledge transfer, and engagement with stakeholders across North America. The activities the ERO Enterprise undertakes will take into account the increasing reliability and security interdependency between the United States, Canada, and Mexico.

Goal 1: Risk-responsive Reliability Standards
Goal 2: Objective, risk-informed compliance monitoring, mitigation, enforcement, and entity registration
Goal 3: Reduction of known reliability risks
Goal 4: Identification and assessment of emerging reliability risks
Goal 5: Identification and reduction of cyber and physical security risks
Goal 6: Effective and efficient ERO Enterprise operations

Core Principles
The following core principles guide the ERO Enterprise's conduct and behavior.

Accountability
- Maintain the public trust in fulfilling responsibilities.
- Act in a timely manner on the basis of facts to address issues related to events, emerging reliability risks, the needs of stakeholders, and the public interest.

Independence
- Be impartial, objective, fair, and intellectually honest.
- Ensure governance practices that provide both regulatory independence and inclusion of stakeholder expertise to address reliability and security matters.

Inclusiveness and Transparency
- Create opportunities for stakeholder engagement.
- Consider and balance the diverse interests of all stakeholders, including costs imposed to the consumer.
- Leverage industry expertise and avoid unnecessary duplication.

[6] The order and number designation of each goal does not reflect priority in relation to the other goals.

Innovation

- Assess emerging risks and adapt to change.
- Encourage new ideas and prioritize efforts that contribute to improving productivity and reliable operations.

Excellence

- Strive for operational excellence.
- Promote the active participation of the best technical experts.
- Make informed decisions regarding efficient use and allocation of resources.

Integrity

- Maintain the highest levels of ethical conduct.
- Maintain respectful relationships.
- Protect the security of confidential information.

Goal 1: Risk-Responsive Reliability Standards

Goal Description

Reliability Standards establish threshold requirements for assuring the Bulk Electric System (BES) is planned, operated, maintained, and secured to minimize risks of cascading failures, avoid damage to major equipment, or limit interruptions of the BPS. Reliability Standards are clear, timely, effective in mitigating risks to reliability, and consider cost-effectiveness/impact.

Key NERC Contributing Activities

- With the support of industry and other affected stakeholders, working with NERC's Standards Committee, and incorporating feedback loops as necessary:
  - Conduct a comprehensive review of the Reliability Standards to ensure they are necessary for reliability and security, performance-based, and cost-effective in addressing known and emerging risks, retiring those requirements not needed for the reliability or security of the BPS.
  - Identify potential modifications to Reliability Standards necessary to address emerging risks, including impacts associated with essential reliability services (ERS), if any.
  - Determine whether enhancements are required to the current family of protection and control (PRC) standards or related NERC guidance materials. (Risk Profile 4, Recommendation 3)
  - Implement the supply chain Reliability Standard and evaluate the standard's effectiveness to mitigate risks to the BPS.
  - Prioritize standards development and review activities.
  - Address standards-related regulatory directives.
  - Provide guidance and outreach for approved standards.

Key Regional Entity Contributing Activities

- Provide input on and facilitate industry review of new and existing Reliability Standards, including cost effectiveness/impact analysis.
- Provide input and feedback for new and existing Reliability Standards using compliance monitoring experience as a basis.
- Provide guidance and outreach on approved Reliability Standards.
- Develop, as needed, regional variances or regional standards to address specific reliability risks and evaluate the need for existing regional standards.
- Review existing regional standards to determine if any could be incorporated as a regional variance to a content-wide Reliability Standard.

Goal 2: Objective, Risk-Informed Compliance Monitoring, Mitigation, Enforcement, and Entity Registration

Goal Description

The ERO Enterprise is a strong enforcement authority that is objective, fair, and promotes a culture of reliability excellence through risk-informed compliance monitoring, mitigation, enforcement, and registration.

Key ERO Enterprise Contributing Activities

- Complete the transition to risk-based compliance and enforcement with a focus on an entity's inherent risk, internal controls, and history of significant violations.
- Work with industry, the NERC's Compliance and Certification Committee, and other stakeholders to review and streamline compliance and enforcement activities to (1) reduce program inefficiencies and (2) assist registered entities in understanding both the necessary steps to achieve compliance with applicable standards and the benefit of integrating standards compliance into their internal and operating controls environment.

Key NERC Contributing Activities

- Promote proactive, integrated, and risk-based operating practices for registered entities.
- Ensure technical rigor and consistency of the Entity Registration program across the ERO Enterprise.
- Ensure consistency, timeliness, and appropriate transparency in the execution of the Compliance Monitoring and Enforcement Program (CMEP).
- Ensure technical assessments of registered entities' plans and activities to mitigate noncompliance.
- Evaluate system events with the goal of identifying and sharing information regarding good industry practices in risk identification, mitigation, and lessons learned.
- Implement a training program that carries out the ERO Enterprise compliance monitoring and enforcement competency guides[7] and ensures ERO Enterprise CMEP staff have the skills to perform high quality, rigorous CMEP activities.
- Provide guidance and outreach to registered entities to promote reliability and security of the BPS and compliance with the Reliability Standards, including activities under the Compliance Guidance Policy[8].
- Develop and implement the CMEP Technology Project[9].

Key Regional Entity Contributing Activities

- Identify and register BES owners, operators, and users. Maintain accurate, up-to-date registration information, identifying entities responsible for compliance.
- Ensure entities performing the functions of Reliability Coordinator, Balancing Authority, and Transmission Operator have the tools, processes, and training to meet applicable Reliability Standards requirements.

[7] Competency guides for compliance monitoring and enforcement are included in the Compliance Monitoring and Enforcement Manual
[8] Compliance Guidance Policy
[9] See slides 3–11 in the Registered Entity and ERO Enterprise IT Applications Update to the NERC Standards Oversight and Technology Committee on August 3, 2017

- Develop and implement compliance oversight plans for registered entities focusing on relevant risks, including consideration of inherent risk assessments, entity performance history, and effectiveness of internal controls.
- Work collaboratively with NERC and other Regional Entities to provide clear and consistent guidance on the CMEP process, including coordinated oversight of Multi-Region Registered Entities.
- Conduct technical assessments of registered entities' plans and activities to mitigate noncompliance.
- Undertake enforcement activities in accordance with established risk-based approaches.
- Take action to address any findings, recommendations, enhancements, guidance, and inconsistencies identified in NERC's registration, compliance monitoring, and enforcement oversight reports.
- Participate in the development and implementation of the CMEP Technology Project.

Goal 3: Reduction of Known Risks to Reliability

Goal Description

The ERO Enterprise recognizes significant known risks to reliability, assures those reliability risks are reduced, and promotes a culture of reliability excellence.

Key ERO Enterprise Contributing Activities

- Work closely with industry, industry forums, NERC's Planning and Operating Committees, and other stakeholders in performing ongoing analysis of significant known reliability risks (e.g., vegetation management, protection system misoperations, human error, and system stability).
- Develop recommendations on how to best address significant known reliability risks, whether through standards or other programs and methods.
- Ensure interconnection-wide models are of high quality and fidelity.
- Work with NERC's Planning and Operating Committees to develop guidelines, lessons learned, and industry practices to maintain accurate system models that include the resources (synchronous and inverter based), load, and controllable devices providing ERS.
    - Develop accurate dynamic models with industry and manufacturers and developers of asynchronous resources and make them available.
    - Ensure that the Inverter-Based Resource Performance Task Force (IRPTF) completes its scope of work on schedule and implements the recommendations needed to maintain reliability. The recommendations should include addressing any gaps in NERC Reliability Standards. (Risk Profile 1, Recommendation 5)
    - Working with the industry and forums, develop guidelines and good industry practices for developing and maintaining accurate system and electromagnetic models that include the resources, load, and controllable devices that provide ERS, including the addition of benchmarking of dynamic models with Phasor Measurement Units (PMU) measurements based on actual system response to disturbance. (Risk Profile 2, Recommendation 2)
    - Collaborate with Planning Coordinators to expand development of interconnection-wide models with expected dispatches to support effective long-term planning assessments.
- Analyze system performance, events, and relationships among data sources to identify risks and mitigation strategies and provide recommendations and lessons learned, including those that are lower impact, to discover potential reliability trends early in their lifecycles. Work with NERC's Planning and Operating Committees and stakeholders to mitigate these risks.
    - Conduct webinars on event lessons learned.
    - Evaluate performance trends using additional data collected by event analysis to extract insights, issues, and trends for dissemination across industry participants.
    - Perform a root cause or common mode failure analysis of partial and full loss of key Energy Management System (EMS) capability using events analysis information and provide lessons learned and recommendations to reduce the likelihood of failure.
    - Evaluate whether key applications are over reliant on a service provider and identify mitigating actions to reduce the risk. (Risk Profile 6, Recommendation 1)
- Foster risk information and data sharing and analysis while protecting confidential information.
- Develop a guideline for industry use in addressing data modeling and information sharing.

- Working with industry forums, expand communication and encourage sharing of good industry practices for increasing Human Performance (HP) effectiveness (publishing lessons learned/good industry practices and supporting the NERC and North American Transmission Forum HP conference and other related workshops). (Risk Profile 5, Recommendation 1)
- Promote the use of NERC cause codes to establish a common understanding of HP triggers, collect and evaluate trends in data, and develop metrics as needed. (Risk Profile 5, Recommendation 3)
- Promote risk-based continuous learning and improvement that help industry avoid large-scale events.
- Work with stakeholders to develop and share knowledge and information supporting BPS resilience.
  - Encourage industry forums, research organizations, and NERC's Planning and Operating Committees to share technologies or processes on condition monitoring, failure prevention, spare sharing, resiliency, and recovery. (Risk Profile 4, Recommendation 4)
  - Expand sharing of good industry practices and lessons learned regarding coordination among Reliability Coordinators, Balancing Authorities, and Transmission Operators during extreme weather events.
  - Better understand the interdependence of the telecommunication infrastructure and electric infrastructure during a natural disaster. (Risk Profile 7, Recommendation 4)

Key NERC Contributing Activities

- Gather additional system performance data (e.g., data on balancing and frequency performance, renewables, and ERS) to advance analytics and improve modeling.
- Encourage industry and trade associations to identify skill gaps and develop recommendations to address them (e.g., curricula, programs, industry support, and educational pipeline programs), including those which may be associated with protection and control schemes. (Risk Profile 5, Recommendation 2)
- Work with industry experts and the forums to develop industry guidelines on protection and control system management to improve performance. (Risk Profile 4, Recommendation 2)
- Establish mechanisms to track and assess the effectiveness of recommended system improvement and risk reduction measures.
- Expand strategic partnerships in identifying and mitigating risks.
- Facilitate the exchange of information and coordination during system events.

Key Regional Entity Contributing Activities

- Address NERC and/or regionally identified risks, such as protection system misoperations, and report against targets established for the ERO Enterprise.
- Quantify and measure known risks to the region.
- Communicate regional risks to NERC and both regional and NERC-identified risks to industry.
- Conduct information gathering and sharing regarding good industry practices in risk identification, mitigation, and lessons learned.
- Communicate and share information regarding significant BPS events with NERC, FERC, and the other Regional Entities in a timely manner.
- Provide outreach and input for ERO Alerts and advisories.
- Participate in and coordinate with NERC on the activities of the NERC and regional technical committees.

Goal 4: Identification and Assessment of Emerging Reliability Risks

Goal Description

The ERO Enterprise identifies, objectively assesses, and prioritizes emerging risks to reliability to inform stakeholders and enable effective actions to reduce these risks to reliability.

Key ERO Enterprise Contributing Activities

- Identify risk-based data needs, collection, analysis, and modeling technology to assess the impact of emerging risks, including distributed energy resources, on planning, operations, and restoration and recovery, incorporating the identification of data and information-sharing needs. (e.g., collecting phasor measurement unit data, benchmarking dynamic load models to improve software, and performing analysis of distributed energy resources/dynamic load contribution modeling).
- Provide more effective guidance to evaluate and improve controllable device settings (e.g., inverter based resources, protective relay schemes, remedial action schemes, static synchronous compensators (STATCOMs)/static VAR compensators (SVCs), generation distributed control systems, power system stabilizers, etc.) and how the interaction between these devices can affect BPS reliability, particularly during transient conditions. (Risk Profile 1, Recommendation 1)
- Augment data collection and insights into distributed energy resources and their potential impact on the BPS. (Risk Profile 1, Recommendation 2) Identify the type and periodicity of information needed from distributed energy resources to improve load forecasting, generator modeling, and situation awareness. Address coordination requirements between BPS and distribution system planners and operators to account for the uncertainty introduced by integration of variable generation, including the impact of weather on these resources. (Risk Profile 2, Recommendation 1 and Risk Profile 6, Recommendation 2)
- Develop improved modeling and probabilistic methods to evaluate resource adequacy. This includes assessment of emerging trends and insights for resource planning and operating models. Adequacy review should include evaluation of augmenting existing and new measurements of ERS, coordination of controls, balancing load with resources, and resource adequacy in light of installed and available capacity from variable generation. This also includes the use of probabilistic approaches to develop resource adequacy measures that reflect variability and overall reliability characteristics of the resources and composite loads, including non-peak system conditions. (Risk Profile 3, Recommendation 2)
- Provide independent technical assessments of the reliability impacts from the changing resource mix driven by proposed state, provincial, or federal statutes and transmission provider tariffs.
- Assess vulnerabilities from fuel availability as part of evaluating adequacy and capability to deliver resources. (Risk Profile 3, Recommendation 4)
- As necessary, conduct a special regional assessment that addresses natural gas availability and pipeline impacts under physical attack scenarios. (Risk Profile 8, Recommendation 5)
- Assess reliability issues related to gas-electric dependency:
  - Collaborate with Planning Coordinators to assess the impact on reliability from well-head, storage, and fuel delivery issues and how to assess them in long-term planning studies. (Risk Profile 2, Recommendation 3)
  - Conduct electric and gas inter-dependency studies to identify BPS reliability risks and solutions, including opportunities for more resilience producing coordination between electric and gas industries.

  - Study multiple simultaneous limitations on natural gas deliveries during extreme weather. (Risk Profile 7, Recommendation 1)
  - Assess the risks of physical attack scenarios on midstream or interstate natural gas pipelines, particularly where natural gas availability will impact generation and the reliability of the BPS. (Risk Profile 8, Recommendation 2)
- Work with industry, NERC's Planning and Operating Committees, and other stakeholders to promote BPS resiliency.
  - Provide the technical basis for BPS resiliency enhancements (RISC Profile 4, Recommendation 5).

Key NERC Contributing Activities

- Identify specific examples of the nature, likelihood, and extent of the risk to BPS reliability and security (e.g., ERS, loss of situational awareness, gas dependency, cyber and physical security, common mode failures larger than N-1, and loss of base-load units).
- Develop detailed assessment reports that present objective analysis of potential consequences and actionable recommendations to mitigate emerging risks (e.g., inter-area oscillations, frequency response, and accelerated retirements of conventional resources, including nuclear, coal, and natural gas).
  - Conduct interconnection-wide technical studies and assessments, such as studies and assessments of frequency and inertia response, voltage support, short-circuit analysis, and inter-area oscillation.
  - Coordinate with Planning Coordinators to continually review existing and identify new planning methods and tools needed to respond to the changing system. (Risk Profile 2, Recommendation 4)
  - Assess the recommendations from the *Bulk Power System Impact Due to Disruptions on the Natural Gas System* special assessment and make recommendations on mitigation strategies to address the reliability issues identified. (Risk Profile 3, Recommendation 1)
  - Conduct a detailed special assessment that integrates analytic data trend insights regarding resiliency under severe weather conditions, identifying preventable aspects for BPS reliability. (Risk Profile 7, Recommendation 3)
- Provide actionable recommendations to mitigate significant emerging risks and establish mechanisms to track and assess the effectiveness of these recommendations.
- Educate policymakers, regulators, and industry and other affected stakeholders on the reliability effects associated with emerging reliability risks.
- Work with industry to engage the Electric Power Research Institute (EPRI) in the development of a supplement or companion to the *Interconnected Power System Dynamics Tutorial* that deals with wide-area monitoring under a changing resource mix scenario. (Risk Profile 6, Recommendation 4)
- Based on recommendations and identified risks outlined in EPRI's electromagnetic pulse (EMP) report[10] and soon to be released results for EMP shielding requirements, determine the need to develop Reliability Standards, reliability guidelines, industry webinars, or additional analysis to address EMP events as necessary. (Risk Profile 8, Recommendation 3)

[10] Magnetohydrodynamic Electromagnetic Pulse Assessment of the Continental U.S. Electric Grid: Geomagnetically Induced Current and Transformer Thermal Analysis

Key Regional Entity Contributing Activities

- Use all tools and data available (reliability assessments, engineering software/studies, inherent risk profiles, compliance monitoring data, NERC alerts, analytics, system events, etc.) to identify trends or leading indicators of potential new or emerging BPS reliability risks.
- Perform independent regional reliability assessments to reflect changing resource mix behavior, including distributed energy resources and ERS.
- Seek and engage risk experts both inside and outside industry to better identify unique, new, or emerging risks that may affect the region.
- Perform objective regional seasonal and longer-term resource adequacy assessments and coordinate with NERC on interconnection and North American-wide BPS reliability assessments.
- Conduct objective assessments and studies to address specific emerging risks.
- Provide input to the RISC to provide regional perspectives for incorporation into the RISC report.

Goal 5: Identification and Reduction of Cyber and Physical Security Risks

Goal Description

The ERO Enterprise identifies and evaluates cyber and physical security risks to the BPS and assures those risks are reduced through active stakeholder engagement and information sharing of current threats and vulnerabilities, security workshops, and development of good industry practice guides. The ERO Enterprise supports the Electricity Information Sharing and Analysis Center (E-ISAC), the Cybersecurity Risk Information Sharing Program (CRISP), technical protective programs, and physical and cybersecurity preparedness exercises, and engages with government partners to de-classify sensitive security information needed to protect BPS devices and assets. The ERO Enterprise works with stakeholders to develop and share information to foster BPS resiliency in connection with both traditional and emerging risks.

Key ERO Enterprise Contributing Activities

- Working closely with industry, NERC's Critical Infrastructure Protection Committee (CIPC), governmental agencies, the national labs, industry forums, trade associations and other stakeholders, promote leading security practices, information sharing and analysis, and resilience.
- Evaluate Critical Information Protection (CIP) standards implementation and lessons learned from new technology deployment. (Risk Profile 9, Recommendation 6)
- In collaboration with stakeholders and NERC's CIPC, develop cyber and physical security metrics, good industry practices, and training.
  - Develop metrics measuring and prioritizing potential physical attacks that will result in system disturbances while differentiating them from vandalism or theft incidents. (Risk Profile 8, Recommendation 1)
  - Develop metrics regarding the trend of cyber-attacks and potential threats. (RISC Profile 9, Recommendation 4)

Key NERC Contributing Activities

- Implement the E-ISAC strategic plan[11] endorsed by the Electricity Subsector Coordinating Council (ESCC) Member Executive Committee (MEC).
- Expand the use, availability, and value of cyber and physical security threat and vulnerability information sharing, including cross sector communications and analytics.
  - Through the E-ISAC, expand communications and information sharing among ISACs, including the Telecommunications, Water, and Natural Gas ISACs, to increase visibility into cyber and physical security threats. (Risk Profile 9, Recommendation 2)
  - Seek input from the water, telecommunications, and gas ISACs in the development of physical security Reliability Standards. (Risk Profile 8, Recommendation 4)
  - Mature CRISP and encourage expanded participation.
- Enhance entity participation in the E-ISAC portal and expand the analytic and intelligence capabilities of the E-ISAC.
  - Continue outreach to industry to increase registration and utilization of the E-ISAC portal.

[11] E-ISAC Long-term Strategic Plan (under Public Document Library)

- Participate in E-ISAC technical projects such as CRISP, the Cyber Automated Information Sharing System (CAISS), and the Cyber Hygiene and Internet Risk Program (CHIRP).
- Deploy security tools to protect NERC and the Regional Entities, and promote the voluntary use of those tools by electric utilities.
- Engage government partners to rapidly de-classify and disseminate sensitive security information to asset owners and operators.
  - Encourage governmental entities to improve information sharing with industry.
- Engage and support industry and government in developing effective cyber security resilience, including activities such as GridEx, GridSecCon, the work of the CIPC, and workshops and security briefings.
  - Expand participation in security exercises in order to reflect extreme physical events.
  - Working with CIPC, prioritize lessons learned from regional and national exercises (e.g., GridEx) and publish lessons learned and guidelines as needed.
  - Plan a workshop that is coordinated with U.S., Canadian, and Mexican federal agencies and governmental authorities to address high-impact low-frequency event response, recovery, and communications vulnerabilities. (Risk Profile 7, Recommendation 2)
- Identify and share supply chain cyber security management best practices for high-to-low risk legacy systems, as well as low risk future systems to enhance industry's risk mitigation. Coordinate and engage in these activities with NERC's technical committees, industry groups, national labs, trade associations, forums, vendors, and other associations.

Key Regional Entity Contributing Activities

- Participate in a pilot E-ISAC information-sharing program with the goal of enhancing protection of Regional Entity information and systems.
- Participate in E-ISAC technical projects such as CRISP, the CAISS, and CHIRP.
- Improve industry engagement regarding cyber and physical security risks, including (but not limited to) engagement with the E-ISAC.
- Leverage engagement with registered entities to encourage effective security practices and controls.
- Work collaboratively with NERC and other Regional Entities to develop procedures to effectively monitor and mitigate significant cyber and physical security risks.

Goal 6: Effective and Efficient Operations

Goal Description

The ERO Enterprise embraces transparency, collaboration, consistency, quality, efficiency, and timeliness of results and operates as a coordinated and collaborative enterprise.

Key ERO Enterprise Contributing Activities

- Articulate a shared vision of a highly reliable and secure North American BPS, and support and inspire stakeholders continent-wide in working to support that vision.
- Strengthen coordination among NERC, Regional Entities with cross-border footprints, and North American stakeholders in support of ERO Enterprise reliability and security priorities. Continue steps to fully integrate Mexico into the ERO Enterprise structure.
- Broaden and enhance ERO Enterprise communication strategies with varying and increasing external constituencies (e.g., policymakers, vendors, manufacturers, and emergency planning authorities) as well as within the ERO Enterprise.
- Acquire, engage, develop, and retain highly qualified people with requisite technical expertise to execute the ERO Enterprise's statutory functions.
- Identify and implement opportunities for pooling ERO Enterprise capabilities and resources to improve the effectiveness and efficiency of operations.
- Identify and implement opportunities to reduce the total combined ERO Enterprise operating and fixed asset expenses.
- Work with industry and other stakeholders to enhance the provision and use of their expertise more efficiently and effectively.
- Ensure transparency in both directions for information about reliability risks, including compliance violations and mitigation, events, and data needed to assess reliability.
- Explore opportunities to leverage resources by working with universities, governmental institutions, technology companies, and industry to advance reliability research and analytics.
- Efficiently and effectively manage resources within the ERO Enterprise and operate within approved budgets.
- Expand ERO Enterprise productivity through a disciplined approach to IT investments.
- Understand and manage ERO Enterprise internal risks.
- Evaluate stakeholder feedback on ERO Enterprise performance and take appropriate actions in response.
- Reduce the likelihood of unanticipated year-end excess reserve build-up through improved forecasting and budgeting.

Key NERC Contributing Activities

- Implement documented oversight plans for Regional Entity delegated functions.
- Develop and implement approved NERC and ERO Enterprise software applications, including the CMEP Technology Project, in accordance with established milestone schedules and budgets.
- Enhance methods for presenting and tracking cost benefits of enterprise software development programs, including opportunities for stakeholder input.

- Explore synergistic opportunities with third parties to reduce data storage and analytical costs without compromising data security and confidentiality.
- Increase coordination among the NERC and the Regional Entities with cross-border footprints.
- Strengthen coordination with cross-border stakeholders regarding education and training efforts in support of the reliability and security priorities of the ERO Enterprise.
- Increase outreach and provide opportunities for input from and interactions with cross-border associations (e.g., Canada's Energy and Utility Regulators, the National Association of Regulatory Utility Commissioners, and Mexican counterparts), public and private sector representatives, and other international stakeholders.
- Ensure a similar level of reliability and security exists for the BPS throughout North America to the maximum extent possible in all applicable program areas, including adoption of standards; risk-based compliance monitoring and enforcement; reliability assessments; and, as applicable, engagement with the E-ISAC.
- Working with the relevant Canadian and regional entities, ensure existing memorandums of understanding reflect current efforts and priorities of the ERO Enterprise and provincial regulators.
- Evaluate and implement opportunities to improve the efficiency and cost effectiveness of in-person NERC Board and NERC Board committee meetings.
- Work with the MRC, the leadership of NERC's technical and standing committees, and other stakeholders to improve the efficiency, effectiveness, and value of the MRC, technical and standing committees, task forces, and working groups.
- Work with the transmission and generator forums, trade associations, and other organizations to identify specific areas where these organizations may be capable of assuming a greater role in identifying and assisting industry in mitigating reliability risks.

Key Regional Entity Contributing Activities

- Make effective and efficient use of stakeholder expertise and resources to obtain input on key initiatives.
- Participate in the development and implementation of ERO Enterprise-wide software solutions.
- Identify and support opportunities to improve regional and ERO Enterprise efficiency.