Agenda
Member Representatives Committee
February 5, 2020 | 1:00 p.m. – 5:00 p.m. Pacific
(Please note the schedule may be adjusted real-time should meetings conclude early and/or extend past their scheduled end time.)

westdrift Manhattan Beach
1400 Park View Avenue
Manhattan Beach, California 90266

Conference Room: Loftlight (Lobby Level)

Introduction and Chair's Remarks

NERC Antitrust Compliance Guidelines and Public Announcement*

Consent Agenda

1. Minutes - (Approve)
   a. November 5, 2019 Meeting*
   b. January 9, 2020 Conference Call*

2. Future Meetings*

Regular Agenda

3. Election of NERC Trustees* - (Elect)

4. General Updates and Reports
   a. Business Plan and Budget Input Group Update*
   b. Regulatory Update*
   c. Reliability and Security Technical Committee Update*
   d. ERO Enterprise Effectiveness Survey Update*

5. Policy and Discussion Items
   a. Responses to the Board’s Request for Policy Input*
      i. EMP Strategic Recommendations*
      ii. Supply Chain Risk Assessment*
   b. Additional Policy Discussion of Key Items from Board Committee Meetings*
      i. Corporate Governance and Human Resources Committee
ii. Compliance Committee

iii. Finance and Audit Committee

iv. Technical and Security Committee

c. MRC Input and Advice on Board Agenda Items and Accompanying Materials*

**Technical Updates**

6. Update on FERC Reliability Matters*

7. Grid Transformation*
   a. Framework to Address Known and Emerging Reliability and Security Risks
   b. Panel on Reliability Impacts of Grid Transformation

*Background materials included.
Antitrust Compliance Guidelines

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

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

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

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

- Discussions involving pricing information, especially margin (profit) and internal cost information and participants’ expectations as to their future prices or internal costs.
- Discussions of a participant’s marketing strategies.
- Discussions regarding how customers and geographical areas are to be divided among competitors.
- Discussions concerning the exclusion of competitors from markets.
- Discussions concerning boycotting or group refusals to deal with competitors, vendors or suppliers.
- Any other matters that do not clearly fall within these guidelines should be reviewed with NERC’s General Counsel before being discussed.
III. Activities That Are Permitted

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

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

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

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

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

- Reliability matters relating to the bulk power system, including operation and planning matters such as establishing or revising reliability standards, special operating procedures, operating transfer capabilities, and plans for new facilities.
- Matters relating to the impact of reliability standards for the bulk power system on electricity markets, and the impact of electricity market operations on the reliability of the bulk power system.
- Proposed filings or other communications with state or federal regulatory authorities or other governmental entities.

Matters relating to the internal governance, management and operation of NERC, such as nominations for vacant committee positions, budgeting and assessments, and employment matters; and procedural matters such as planning and scheduling meetings.
Chair Greg Ford, with Vice Chair Jennifer Sterling present, called to order a duly noticed meeting of the Member Representatives Committee (MRC) of the North American Electric Reliability Corporation (NERC) on November 5, 2019, at 1:00 p.m., Eastern, and a quorum was declared present. The agenda and MRC members and their proxies in attendance are attached as Exhibits A and B, respectively.

Introduction and Chair's Remarks
Mr. Ford welcomed MRC members, acknowledging the NERC Board of Trustees (Board), Andy Dodge and others from the Federal Energy Regulatory Commission (FERC), State Commissioner David Clark, and CAMPUT representative David Morton, as well as several Canadian regulators. He noted the retirement of MRC member Lou Oberski. Mr. Ford reminded attendees that presentations conducted at the Board committee meetings would not be repeated during the MRC meeting. He acknowledged the MRC’s responses to the policy input request from Roy Thilly, Chair of the Board.

NERC Antitrust Compliance Guidelines and Public Announcement
Ms. Iwanechko directed the participants’ attention to the NERC Antitrust Compliance Guidelines included in the agenda package, and indicated that all questions regarding antitrust compliance or related matters should be directed to Sonia Mendonca, vice president, interim general counsel, and corporate secretary at NERC.

Minutes
Upon motion duly made and seconded, the MRC approved the minutes of the August 14, 2019, and October 10, 2019, meetings as presented at the meeting.

Future Meetings
The schedule of future meeting dates, including the pre-meeting and informational webinars for 2020, was included in the agenda package.

Mr. Thilly noted that the abbreviated schedule for the November 2019 quarterly meetings was a trial and, based on feedback, would not be followed for future meetings. In a continuing effort to gain efficiencies without decreasing the flow of information, the Board requested that NERC develop a proposal to shift to three in-person Board meetings per year.
**Election of MRC Officers for 2020**
Mr. Ford announced the nominations of Jennifer Sterling for chair and Paul Choudhury for vice chair of the MRC for 2020. Upon motion duly made and seconded, the MRC unanimously approved Ms. Sterling as chair and Mr. Choudhury as vice chair. Ms. Sterling and Mr. Choudhury will assume their new positions at the start of the February 2020 MRC meeting in Manhattan Beach, CA.

**MRC Sector Nominations and Elections Schedule**
Mr. Ford reminded attendees that the nomination period for the annual election of member representatives closes on November 8, 2019. The election will run from December 9, 2019, through December 19, 2019.

**Board of Trustees Nominating Committee Update**
George Hawkins, chair of the Board Nominating Committee (BOTNC), reported that the BOTNC interviewed candidates in October to fill the open position and is on schedule to make a recommendation to the MRC in December for consideration at the MRC’s February 2020 meeting.

**Business Plan and Budget Input Group Update**
Sylvain Clermont, chair of the Business Plan and Budget Input Group, provided an update on the group’s activities. During the group’s most recent call, they reviewed the 2021 business plan and budget development schedule and received an update on the technology projects that are currently in the pipeline to understand potential impacts on the business plan and budget.

**Regulatory Update**
Ms. Mendonca invited questions or comments regarding the regulatory report, which highlights Canadian affairs and significant FERC filings.

**ERO Enterprise Effectiveness Survey Update**
Ms. Iwanechko, associate director of regional and stakeholder relations at NERC, provided an update on the ERO Enterprise Effectiveness Survey issued in July 2018. She noted that a report of the results, including action plans developed to address identified focus areas, was presented at the MRC’s May 2019 meeting. Action plans were developed for areas in four categories: ERO Enterprise Principles, Reliability Standards Development, Compliance Monitoring and Enforcement, and E-ISAC. Ms. Iwanechko noted that most of the activities have either been completed or are in the process of being completed and highlighted some of the key activities in each area. She added that NERC will re-evaluate its survey approach for effectiveness and efficiency and present a simplified approach to the MRC in February 2020.

**MRC Governance Guidelines**
Mr. Ford noted that the MRC Governance Guidelines were developed by NERC and the MRC chair and vice chair, with input from MRC members, with the intent to consolidate the number of documents guiding the MRC down to two – the NERC Bylaws and the new MRC Governance Guidelines. Upon motion duly made and seconded, the MRC unanimously approved the MRC Governance Guidelines.
Responses to the Board’s Request for Policy Input
Mr. Ford acknowledged the MRC’s responses to Mr. Thilly’s October 2, 2019, letter requesting policy input on the Reliability and Security Technical Committee proposal, in addition to the preliminary agenda topics for the November meetings. Responses to the letter are posted with the Board agenda materials on the NERC website.

Reliability and Security Technical Committee Proposal
Ms. Sterling, vice chair of the MRC and co-chair of the Stakeholder Engagement Team (SET), provided an update on the SET’s proposal to replace the Critical Infrastructure, Operating, and Planning Committees with a new Reliability and Security Technical Committee (RSTC). She noted that existing subcommittees, working groups, and task forces would be retained and one of the RSTC’s initial activities will be to evaluate work products of the subcommittees, working groups, and task forces and eliminate or combine those without recurring responsibilities. Ms. Sterling highlighted recent revisions to the proposal, specifically changes to the participation model and how members will be selected, both initially and in the future. She also noted that the SET is recommending Mr. Ford and David Zwergel to serve as the RSTC’s chair and vice chair, respectively, for two-year terms. She added that policy input submitted on the implementation plan would be considered by the RSTC when it develops a detailed implementation plan. Ms. Sterling reviewed the timeline for the upcoming RSTC sector nomination period, scheduled to open on November 6, 2019, and the RSTC at-large nomination period, scheduled to open on December 9, 2019. She added that the Board is considering the revised proposal and charter for approval and chair and vice chair recommendations for appointment at their meeting immediately following the MRC meeting. RSTC sector and at-large members will be presented to the Board for appointment at its February 2020 meeting. The RSTC’s inaugural meeting will be on March 4, 2020.

• An MRC member requested delaying the start of the sector nomination period by a week and shortening the nomination period from four weeks to three weeks. NERC and the SET leadership agreed to make this change.

Additional Policy Discussion of Key Items from Board Committee Meetings
Attendees did not have any additional comments related to the Board’s Finance and Audit Committee, Corporate Governance and Human Resources Committee, Compliance Committee, and Technology and Security Committee meetings.

MRC Input and Advice on Board Agenda Items and Accompanying Materials
An MRC member offered a comment on the Reliability Issues Steering Committee Risk Priorities Report agenda item, suggesting further collaboration with other entities that are currently doing work on drivers for identifying battery storage, which was identified in the report as a new emerging risk.

ERO Enterprise Long-Term Strategy Update
Jim Robb, president and chief executive officer at NERC, provided an update on the ERO Enterprise Long-Term Strategy which was posted for an industry comment period in September 2019. He reiterated that it was developed around the ERO Enterprise Golden Circle and reviewed the five strategic focus areas outlined in the strategy. Mr. Robb summarized the comments received, including requests for linkages to the RISC report, leveraging work of other bodies, and other clarifications. He noted that NERC would
revise the ERO Enterprise Long-Term Strategy based on comments received, share it with the Regional Entity Board’s for input and support, and present it to the Board for approval on its December 14, 2019, conference call.

- MRC members discussed the importance of cost-effectiveness of standards development, the importance of effectiveness of standards beyond cost, and the role that compliance should play in the development of standards and associated guidance.
- An MRC member highlighted the need to coordinate work and collaborate with other organizations to avoid duplication of efforts.

Supply Chain Data Request and NERC Alert Responses
Howard Gugel, vice president of engineering and standards at NERC, reviewed the Board resolution accompanying the adoption of the supply chain standards and provided an overview of the data request that was issued in August 2019. The data request was applicable to entities in CIP-002-5.1a and was focused on information on low impact Bulk Electric System Cyber Systems. He reviewed the data submitted and highlighted several observations: (1) most low impact assets reside in organizations with higher impact assets; (2) most low impact assets are lower risk; (3) a significant percentage of generation resources allow third party access; and (4) a significant percentage of “low only” transmission stations and substations allow third party access. He noted that the data shows a need for further discussion, not only on the supply chain standards but the Critical Infrastructure Protection (CIP) standards more broadly.

- MRC discussion included questions on the definition of third party access. Mr. Gugel clarified that third party access only referred to electronic access, but was not limited to external routable connectivity.
- A Board member requested clarification on next steps. Mr. Gugel suggested continued data and NERC alert analysis, discussion on whether NERC should reconsider bright line criteria, and discussion on whether NERC should include lows in the supply chain standards.

ERCOT Summer 2019 Performance
Bill Magness, president and CEO of ERCOT, and DeAnn Walker, Chairman of the Public Utility Commission of Texas, presented on ERCOT’s summer 2019 performance. Ms. Walker provided an overview of the ERCOT interconnection, including regulatory background and market structure, and how the ERCOT market addresses resource adequacy. Mr. Magness provided additional detail on the energy-only nodal market in the ERCOT interconnection, including reliability tools for emergency conditions. He noted that Texas uses the most electricity of any state and has seen consistent load growth. Mr. Magness provided details about the summer 2019 performance and highlighted key observations: (1) based on mean temperature, June through September ranked as the fourth hottest summer on record in Texas; (2) the tightest conditions frequently occurred earlier than the time of peak demand (the peak net load); (3) resource performance continues to outpace historical patterns; and (4) overall, the market outcomes supported reliability needs.
Update on FERC Reliability Matters
Andy Dodge, director of the Office of Electric Reliability at FERC, provided an update on the following FERC reliability activities: staff report on lessons learned from Commission-led CIP reliability audits; FERC/NERC staff white paper on CIP standards Notices of Penalty; September 10-11, 2019, technical conference on managing transmission line ratings and observations; November 5-6, 2019, grid-enhancing technologies workshop; and compliance filings on storage rule.

Adjournment
There being no further business, the meeting was adjourned.

Submitted by,

Kristin Iwanechko
Secretary
Introduction and Chair’s Remarks
Chair Greg Ford convened a duly-noticed open meeting by conference call and webinar of the North American Electric Reliability Corporation (NERC) Member Representatives Committee (MRC) on January 9, 2020, at 1:00 p.m., Eastern. The meeting provided the MRC and other stakeholders an opportunity to preview proposed agenda topics for the MRC, Board of Trustees (Board), and Board Committee meetings scheduled to be held February 4-5, 2020, in Manhattan Beach, California. The meeting announcement and agenda are attached as Exhibits A and B, respectively.

NERC Antitrust Compliance Guidelines and Public Announcement
Kristin Iwanechko, MRC Secretary, directed the participants’ attention to the NERC Antitrust Compliance Guidelines and the public meeting notice included in the agenda.

Schedule of Quarterly NERC Meetings and Conference Calls
The draft schedule of events for the upcoming meetings in Manhattan Beach was included in the agenda package.

Review of Proposed Board and Board Committees Meeting Agenda Items
Sonia Mendonca reviewed the preliminary agenda items for the Board and Board Committee meetings scheduled for February 4-5, 2020, in Manhattan Beach that were identified in the slide presentation included in the informational session agenda package. MRC members should review all agenda materials for the Board and Board Committee meetings, once posted and available, and attend as many of these meetings as possible in advance of the MRC’s meeting on February 5, 2020.

Review of Proposed MRC Agenda Items for February 5, 2020
Mr. Ford reviewed the following preliminary MRC agenda items for the upcoming February 5, 2020, meeting in Manhattan Beach that were identified in the slide presentation included in the informational session agenda package:

- Election of NERC Trustees;
- Business Plan and Budget Input Group update;
- Regulatory update;
• Reliability and Security Technical Committee update;
• ERO Enterprise Effectiveness Survey Next Steps;
• Discussion of the responses submitted to the policy input request from the Board;
• EMP Strategic Recommendations;
• Supply Chain Risk Assessment;
• Additional discussion of the issues presented at the Board Committee meetings;
• MRC input and advice on Board agenda items and accompanying materials;
• Update on FERC Reliability Matters; and
• Grid transformation:
  ▪ Framework to address known and emerging reliability and security risks; and
  ▪ Panel on reliability impacts of grid transformation.

**Policy Input Reminder**
Mr. Ford announced that the Board’s request for policy input was released on January 2, 2020, and responses are due by Wednesday, January 22, 2020, to Kristin Iwanechko, committee secretary. Mr. Ford noted that the Board requested input on the EMP Strategic Recommendations and the Supply Chain Risk Assessment. The Board also requested input on the preliminary agenda topics presented during the MRC Informational Session. There will be time dedicated on the MRC’s February 5, 2020, agenda for MRC members to provide input and advice on the Board agenda items after the final package has been posted.

**Proxy Reminder**
Proxy notifications for the February 5, 2020, meeting must be submitted in writing to Ms. Iwanechko.

**Meeting Adjourned**
There being no further business, the call was terminated.

Submitted by,

Kristin Iwanechko
Secretary
**Future Meetings**

**Action**  
Information

**Summary**  
The following are the future meeting dates for 2020 and 2021. The dates for 2020 pre-meeting and information webinars are also included below.

### 2020 Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>April 15</td>
<td>Pre-Meeting and Informational Session</td>
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<tr>
<td>May 13-14</td>
<td>Washington, DC</td>
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<tr>
<td>July 22</td>
<td>Pre-Meeting and Informational Session</td>
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<tr>
<td>August 19-20</td>
<td>Vancouver, Canada</td>
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<tr>
<td>October 7</td>
<td>Pre-Meeting and Informational Session</td>
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<tr>
<td>November 4-5</td>
<td>Atlanta, GA</td>
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### 2021 Dates

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<thead>
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<th>Date</th>
<th>Location</th>
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<tr>
<td>February 3-4</td>
<td>Manhattan Beach, CA</td>
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<tr>
<td>May 12-13</td>
<td>Washington, DC</td>
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<tr>
<td>August 11-12</td>
<td>TBD-Canada (Montreal/Toronto)</td>
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<tr>
<td>November 3-4</td>
<td>TBD-Atlanta, GA/New Orleans, LA</td>
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Election of NERC Trustees

Action
Elect three NERC Board of Trustees (Board) as Class of 2023 (with three-year terms).

Background
Election of the Trustees of the Corporation is governed by Section 5 and 6 of Article III of the Bylaws. The details are provided in the attached report. George Hawkins, chair of the Board’s Nominating Committee, will present the enclosed report.

Attachment
1. Report of the Nominating Committee to the Member Representatives Committee
Report of the Board of Trustees
Nominating Committee to the
Member Representatives Committee
December 9, 2019

The Nominating Committee of the Board of Trustees for the North American Electric Reliability Corporation (NERC) recommends the following nominees for election to the NERC Board of Trustees at the Annual Meeting of the Member Representatives Committee (MRC) on February 5, 2020:

Class of 2023 (three-year terms):
Suzanne Keenan
Jim Piro
Roy Thilly

This report includes a brief biography of each nominee.

Members of the Nominating Committee
The Nominating Committee consists of independent NERC Trustees George S. Hawkins (Committee Chair), Robert G. Clarke, Kenneth W. DeFontes, Dave Goulding, Robin E. Manning, Jan Schori, and Colleen Sidford, as well as MRC members Greg Ford (MRC Chair), Jennifer Sterling (MRC Vice Chair), Sylvain Clermont, Roy Jones and Lou Oberski.

Background
Article III of NERC’s Bylaws establishes the qualifications and sets the nomination and election procedures for members of NERC’s Board of Trustees. NERC’s independent trustees serve staggered three-year terms, and an election of trustees occurs at the Annual Meeting of the MRC each year. All independent trustees are to be elected from nominees proposed by the Nominating Committee. A nominee shall be elected an independent trustee if such person receives the affirmative vote of two-thirds of the members of the MRC. Each nominee receiving the necessary two-thirds vote of the MRC shall take office immediately upon election.

The incumbent trustees whose terms expire at the February 2020 Annual Meeting are Suzanne Keenan and Roy Thilly. It is expected that the Board will, effective February 2020, reduce the Board by one member (to 11 members) with the expiration of the term of Janice Case. NERC’s trustee succession policy, more fully discussed below, provides that no independent trustee may be re-nominated or re-elected if he or she has served 12 consecutive years as an independent trustee. Trustees Janice Case and Fred Gorbet were rendered ineligible to seek re-election as a result of the application of the policy.
Committee Process
The Nominating Committee is required to present three nominees for election at the February 2020 MRC meeting. The Committee was pleased to learn that each of Keenan and Thilly was willing and interested to serve an additional term. Committee members solicited the views of stakeholders on each of Keenan and Thilly and reviewed their performance. Based on stakeholder input and the Committee’s own views, the Committee determined that each of Keenan and Thilly was well-qualified to continue to serve and should be re-nominated.

The Committee retained the services of the Board and executive search firm Lyceum Leadership Consulting (Lyceum) to assist in the search and evaluation of candidates to fill the open trustee position. As directed by the Bylaws, the Nominating Committee provided an opportunity for stakeholders to suggest trustee candidates. The Committee received many excellent suggestions and, working with Lyceum, was pleased to have an excellent list of candidates from which to choose. With the assistance of Lyceum, the Committee reviewed the background of each candidate, screened the candidates for possible conflicts of interest, and interviewed a total of four candidates. In developing its approach to fill the open trustee position, the Committee noted the attributes each of the current members of the Board of Trustees bring to the Board.

As set forth in this report, the Nominating Committee unanimously recommends three nominees for election to the NERC Board of Trustees for a three-year term ending at the February 2023 annual meeting of the MRC. With respect to Jim Piro, the nominee to fill the new trustee position, the Committee particularly notes his extensive board and executive experience, his excellent national reputation across the electric power industry and his array of experiences in utility leadership.

Trustee Succession
The Board of Trustees has adopted a policy statement on trustee succession as set forth in the NERC Governance Guidelines, and the Nominating Committee has followed that policy in making the nominations. The policy statement directs the Nominating Committee to observe the following guidelines in proposing nominees to serve as independent trustees:

- Each year the Nominating Committee should include in its report to the Member Representatives Committee a calculation of the average tenure of the independent trustees. The Nominating Committee should endeavor to keep the average tenure of independent trustees below six years.\(^1\)
- To the extent feasible, the Nominating Committee should determine prior to soliciting suggestions for candidates whether the Committee expects that one or more incumbent trustees will not be re-nominated.
- No independent trustee may be re-nominated or reappointed after he or she has served on the Board for twelve consecutive years, unless at least one year has elapsed between the end of service on the Board and the subsequent re-nomination or reappointment.

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\(^1\) The calculations also include any service on the board of the North American Electric Reliability Council.
As of February 2020, the incumbent nominees will have the following years of service on the NERC Board:

- Suzanne Keenan: 2 years (assumed the term of departing Trustee Parker)
- Roy Thilly: 9 years

Assuming the election of the nominees, as of February 2020 the average tenure of all independent trustees would be 4.6 years.

Biographies of the Nominees

**Suzanne Keenan**

Suzanne Keenan was elected to the Board of Trustees of the North American Electric Reliability Corporation in February 2018. Ms. Keenan is the chair of the Technology and Security Committee and serves on the Enterprise-wide Risk Committee.

Ms. Keenan served as the chief information officer and senior vice president for Wawa Inc., a leading East Coast retail chain with more than 750 stores and one of the largest privately held companies in the United States, from 2008 to 2017. In her role, she led the development and implementation of technology, process, and support strategies, as well as the creation and evolution of the company’s cyber security program.

Prior to joining Wawa, Ms. Keenan served in executive positions with Comcast Cable Communications, where she was responsible for Cable Human Resources and Customer Operations. Previously, she served in a series of positions with PECO Energy, including vice president of Customer and Marketing Services and roles focused on field services, reengineering and performance, regulatory performance, and emergency preparedness. Ms. Keenan’s community board roles have included board positions with the USO of Pennsylvania and Southern New Jersey, Greater Philadelphia’s Big Brother Big Sister organization, and Delaware Community College. She is also a member of SAPs Independent Executive Advisory Council.

Ms. Keenan received a bachelor's degree in Nuclear Engineering from Pennsylvania State University and master's degree in Health Physics from the University of Pittsburgh. Her honors include being named Penn State’s Nuclear Engineering Outstanding Alumni Lecturer for 1999 and Penn State’s Outstanding Engineering Alumna in 2000.

**Roy Thilly**

Roy Thilly was elected to the Board of Trustees of the North American Electric Reliability Corporation in February 2011 and was elected to chair in February 2017. He served as vice chair and chair-elect in 2016. Mr. Thilly serves as an Electricity Subsector Coordinating Council (ESCC) observer, and as an ex officio member of all other Board committees.

Mr. Thilly served as president and chief executive officer with WPPI Energy from January 1, 1992, to January 31, 2011. WPPI Energy is a bulk power utility with 51 municipal utility member systems located in Wisconsin, Iowa, and Michigan. He also served from 2001 through 2010 on the Board of Directors of the American Transmission Company.
Before joining WPPI Energy, Mr. Thilly was a partner in the Madison law firm of Boardman, Suhr, Curry, and Field, where he represented municipal utilities from several states and other clients before the Federal Energy Regulatory Commission and in power supply negotiations and general litigation.

A native of New York, Mr. Thilly completed his bachelor’s degree in English at Columbia University in 1968. For the following three years, he served as a Peace Corps volunteer in the Philippines. Mr. Thilly graduated magna cum laude from the University of Wisconsin Law School in 1974.

Mr. Thilly has been active on national and state electric issues for many years. He previously served on NERC’s Board from 1991–2002. From 2011 to 2013, he chaired the Stakeholder Steering Committee of the Eastern Interconnection Planning Collaborative, on behalf of the U.S. Department of Energy, helping to oversee the development of an interconnection-wide transmission planning process. In 2014, the secretary of energy appointed Mr. Thilly to the Department of Energy’s Electric Advisory Committee.

Mr. Thilly is a past president of the American Public Power Association and of the Mid-Continent Area Power Pool (MAPP) and a past member of the Board of Directors of the Midwest Reliability Organization. From 1992 through 2010, he served as chair of the Transmission Access Policy Study Group (TAPS), a national organization of transmission-dependent utilities that promotes equal access and competition in electricity at wholesale.

On the state level, he served as co-chair of the Wisconsin Governor’s Task Force on Global Warming in 2007 and 2008. In 2004, he served on the Governor’s Task Force on Energy Efficiency and Renewables. He is past chair of Gathering Waters Conservancy, Wisconsin’s alliance of land trusts, and a member of the Board of Directors of the Door County Land Trust and chair of its endowment.

**Jim Piro**

Mr. Piro served as president and chief executive officer for Portland General Electric (PGE) from 2009 up to his retirement at the end of 2017. His tenure as CEO is noted for an unwavering commitment to public and employee safety, operational excellence, business growth, and giving back to the community.

Mr. Piro began his 43-year career in the energy industry in 1974 as a civil engineer designing transmission towers for Pacific Gas and Electric. Joining PGE in 1980, he worked his way through the company, first as an engineer at the Trojan Nuclear Plant, then in thermal plants. Eventually, he transferred into the rates and regulatory area. From 1998 to 2000, Jim was responsible for business development during the heady days of non-regulated growth for most utility companies. In 2000, he was appointed as EVP and Chief Financial Officer and served in this role for eight years.

Throughout his career, Mr. Piro has been an advocate for smart energy solutions, a healthy state economy, and improved educational outcomes. He has served on local, state level, and national boards for a number of organizations, including: the Edison Electric Institute (Co-Chair of the Electrification of Transportation Committee and member of Policy Committee on Reliability, Security & Business Continuity); the Transportation Electrification Coalition, the Oregon Global Warming Commission; the Science, Technology, Engineering and Math (STEM) Investment Council (Chair); the Oregon Business Council; All Hands Raised;
Cradle to Career; Greater Portland Inc. (Chair); Oregon State University Foundation; and the PGE Foundation.

Mr. Piro earned a bachelor's degree in civil engineering with an emphasis in structural engineering from Oregon State University and was inducted into the OSU Engineering Hall of Fame in 2018.
Business Plan and Budget Input Group Update

Action
Information

Summary
The Business Plan and Budget (BP&B) Input Group was established as a means of getting MRC and stakeholder feedback toward each year’s budget. The group meets at least once per month during the normal budget season and additionally in other months to receive updates on NERC’s financial position and discuss upcoming budget strategies. The following MRC members are serving on this year’s BP&B Input Group:

1. Sylvain Clermont (Chair) – Federal/Provincial Utility
2. Jennifer Sterling – MRC Chair
3. Greg Ford – Cooperative Utility
4. Carol Chinn – State/Municipal Utility
5. Lloyd Linke – Federal/Provincial Utility
7. John Twitty – Transmission-Dependent Utility

In addition to the above MRC members, the BP&B Input Group also includes a representative from a Regional Entity (Ed Schwerdt – NPCC) and a representative from the RISC (Peter Brandien – past RISC chair).

Sylvain Clermont, chair of the BP&B Input Group, will provide an update on behalf of the group at the February 5, 2020, MRC Meeting.
Action
Information

**FERC Orders Issued Since the Last Update**
FERC orders are available on the NERC website FERC Orders/Rules page.

**NERC Filings to FERC Since the Last Update**
NERC filings to FERC are available on the NERC website NERC Filings to FERC page.

**NERC Filings in Canadian Jurisdictions Since the Last Update**
NERC filings to Canadian applicable governmental authorities are available on the NERC website Canadian Filings and Orders page. This page also contains links to the websites of each of the Canadian applicable governmental authorities, where orders, consultation records, and other records related to NERC matters may be found.

Processes for making standards enforceable and monitoring and enforcing compliance are specific to each jurisdiction in Canada. The Federal, Provincial, and Territorial Monitoring and Enforcement Sub-group (MESG) has developed provincial summaries of each province’s electric reliability standard-making and enforcement functions, with U.S. comparators. The Canada page of the NERC website contains these summaries, as well as a link to the Canadian MOUs page.

**Anticipated NERC Filings**
Highlights of NERC filings that will be submitted to applicable governmental authorities in the U.S. and Canada appear below:

1. **February 14, 2020** – Within 45 days of the end of each quarter, NERC must submit the unaudited report of the NERC budget-to-actual spending variances during the preceding quarter. *Docket No. FA11-21-000*
   *Pending Board Approval*


3. **March 6, 2020** – NERC will submit its Standards Alignment with Registration filing for approval.
   *Pending Board Approval*

4. **March 6, 2020** – NERC will submit a petition for approval of Regional Reliability Standard BAL-001-TRE-2 - Primary Frequency Response in the ERCOT Region.
   *Pending Board adoption*
5. March 6, 2020 – NERC will submit a petition for approval of Reliability Standard TPL-007-4 - Transmission System Planned Performance for Geomagnetic Disturbance Events per Order No. 851.
   *Pending Board adoption*

6. March 6, 2020 – NERC will submit a petition for approval of Reliability Standard PRC-024-2 - Frequency and Voltage Protection Settings for Generating Resources.
   *Pending Board adoption*
Reliability and Security Technical Committee Update

Action
Information

Background
The NERC Board of Trustees (Board) called for a comprehensive review of the existing technical committee structure to determine how to improve the effectiveness and efficiency of those committees. As a result of that request, a stakeholder engagement team (SET) was formed to develop a recommendation. The SET was comprised of members of the Board, leadership and representatives from the Member Representatives Committee (MRC), the chairs of the existing technical committees, stakeholder volunteers, as well as NERC staff.

The SET considered multiple options for fulfilling the ERO Enterprise need for participatory technical input on matters of reliability and security of the North American bulk power system (BPS), including maintaining the existing committee structure. The SET recommended forming a new committee – the Reliability and Security Technical Committee (RSTC) - to replace the three existing technical committees (Operating, Planning and Critical Infrastructure Protection).

Article VII of the NERC Bylaws provides that the NERC Board may appoint committees, by resolution, as the NERC Board deems necessary to carry out its purposes. Such committees must be representative of members, other interested parties and the public. They must also provide for balanced decision-making as well as participation of persons with technical knowledge and experience.

All appointments of NERC committees shall provide the opportunity for an equitable number of members from the United States and Canada (and from Mexico after NERC receives recognition by appropriate governmental authorities in Mexico as its electric reliability organization) to be appointed to each committee in approximate proportion to each country’s percentage of the total Net Energy for Load. All committees shall have such scope and duties, not inconsistent with law, as are specified in the NERC Bylaws, the NERC Rules of Procedure, or as otherwise determined by the NERC Board.

Summary
The Board, at its November 5 meeting, appointed the officers of the RSTC: Greg Ford, Chair and David Zwergel, Vice Chair. Per the RSTC proposal presented at the November 5 Board meeting, the Sector nomination period was held November 12 through December 6 seeking two representatives from Sectors 1-10, and 12.

The following sectors had more than two nominees, Sector elections were December 9-20, 2019:

- Sector 1 – Investor Owned Utility
- Sector 2 – State/Municipal Utility
- Sector 4 – Federal or Provincial Utility/Power Marketing Administration
• Sector 6 – Merchant Electricity Generator
• Sector 7 – Electricity Marketer
• Sector 8 – Large End Use Electricity Customer
• Sector 9 – Small End Use Electricity Customer

The final Sector slate, pending Board approval at its February 6, 2020 meeting:

<table>
<thead>
<tr>
<th>Sector Representatives</th>
<th>Sector Elected Members</th>
</tr>
</thead>
</table>
| 1. Investor-owned utility | Greg Stone (Duke Energy) – 2020-2023  
Kayla Messamore (Evergy) – 2020-2022 |
| 2. State/municipal utility | Saul Rojas (NYPA) – 2020-2023  
Chris Shepherd (Gannett Fleming) – 2020-2022 |
| 3. Cooperative utility | Marc Child (Great River Energy) – 2020-2023  
Ben Engelby (Arizona G&T Cooperatives) – 2020-2022 |
| 4. Federal or provincial utility/Federal Power Marketing Administration | Edison Elizeh (Bonneville Power) – 2020-2023  
Robert Reinmuller (Hydro One) – 2020-2022 |
| 5. Transmission dependent utility | John Stephens (City Utilities of Springfield) – 2020-2023  
Carl Turner (Florida Municipal Power) – 2020-2022 |
Sheranee Nedd (Public Service Enterprise Group) – 2020-2022 |
| 7. Electricity Marketer | Kyle Vander Helm (Tenaska, Inc.) – 2020-2023  
Jodirah Green (ACES Power) – 2020-2022 |
| 8. Large end-use electricity customer | John Hughes (Electricity Consumers Resource Council) – 2020-2023  
Venona Greaff (Occidental Chemical) – 2020-2022 |
| 9. Small end-use electricity customer | Darryl Lawrence (PA Office of Consumer Advocate) – 2020-2023  
David Mulcahy (Modern Energy) – 2020-2022 |
| 10. Independent system operator/ regional transmission organization | Wesley Yeomans (NY Independent System Operator) – 2020-2023  
Christine Hasha (ERCOT) – 2020-2022 |
| 12. State Government | Christine Ericson (Illinois Commerce Commission) – 2020-2023  
Cezar Panait (Minnesota Public Utilities Commission) – 2020-2022 |

The At-Large Nomination period was held December 30, 2019 through January 10, 2020, 53 nominations were submitted. All At-Large Election material can be found here: [At-Large Nominations](#). The Nominating Subcommittee met on January 23, 2020 reviewed all nominations and are recommending NERC Board approval at its February 6, 2020 meeting the following slate of 10 At-Large nominees.

<table>
<thead>
<tr>
<th>At-Large Nominees</th>
<th>Company and Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patrick Doyle</td>
<td>Hydro Quebec – 2020-2023</td>
</tr>
<tr>
<td>David Jacobson</td>
<td>Manitoba Hydro – 2020-2023</td>
</tr>
<tr>
<td>Sandra Ellis</td>
<td>Pacific Gas &amp; Electric Company – 2020-2023</td>
</tr>
<tr>
<td>Rich Hydzik</td>
<td>Avista – 2020-2023</td>
</tr>
<tr>
<td>Todd Lucas</td>
<td>Southern Company -2020-2023</td>
</tr>
<tr>
<td>Wayne Gutormson</td>
<td>Sask Power – 2020-2022</td>
</tr>
<tr>
<td>Lloyd Linke</td>
<td>WAPA, Upper Great Plains Region – 2020-2022</td>
</tr>
<tr>
<td>Brian Evans-Mongeon</td>
<td>Utility Service – 2020-2022</td>
</tr>
<tr>
<td>Jeff Harrison</td>
<td>Associated Electric Cooperative – 2020-2022</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Peter Brandien</td>
<td>ISO NE – 2020-2022</td>
</tr>
</tbody>
</table>

The first meeting of the RSTC will be March 4, 2020 in Atlanta.
ERO Enterprise Effectiveness Survey Update

Action
Information

Summary
The ERO Enterprise conducts a stakeholder survey as one measure of the effectiveness of the ERO Enterprise in executing program activities. Results are used to identify opportunities to improve ERO Enterprise effectiveness and to inform future ERO Enterprise strategic and business planning activities.

Surveys were issued in January 2015, May 2016, and July 2018 (initially on an annual basis before shifting to biennially) and distributed to a broad group of stakeholders. At the November 2019 MRC meeting, NERC staff stated that as part of its continued focus on effectiveness and efficiency, it was reevaluating its approach to the ERO Enterprise Effectiveness Survey.

The ERO Enterprise Effectiveness Survey is complicated, inefficient, ineffective, and duplicative. The recent surveys have been extensive, including 76 questions. The time and effort for stakeholders to complete the survey and for staff to review and analyze responses is substantial and survey responses have generally not provided new information or concerns. Ratings have not varied significantly and the resulting action plans duplicated actions that were already being taken or already planned.

Approach for Future Surveys
Recognizing the priority on effectiveness and efficiency, and the challenges with the current approach, NERC staff is proposing to discontinue the ERO Enterprise Effectiveness Survey and instead focus on more targeted efforts to maintain effective engagement:

- The Compliance and Certification Committee is reviewing its portion of the survey and reevaluating how it receives input on stakeholder perceptions (could be through a survey as well as other approaches).
- E-ISAC is planning to conduct targeted surveys to E-ISAC members.
- Continue to receive industry feedback through existing avenues (e.g., standards development process, business plan and budget input group, committee meetings, policy input, MRC informational session, Board and MRC meetings, etc.).

NERC believes this approach will provide more effective and efficient real-time feedback from our stakeholders. NERC recognizes the need to coordinate the timing of its surveys and will actively work to minimize overlaps. NERC and the Regional Entities are also coordinating awareness of surveys across the ERO Enterprise for a broader view of impact on industry.
Responses to the Board’s Request for Policy Input

Action
Discussion

Background
The policy input letter is issued by the Chair of the NERC Board of Trustees (Board) four to five weeks in advance of the quarterly meetings and includes relevant materials necessary to inform and prepare for discussion. Written input from the Member Representatives Committee (MRC) and stakeholders is due three weeks after issuance and is then revisited during a dedicated discussion time on the MRC’s agenda, in the presence of the Board.

Summary
For this quarter, the Board requested specific policy input on Electromagnetic Pulse Strategic Recommendations and the Supply Chain Risk Assessment. In addition, the Board requested input on preliminary Board, Board Committee, and MRC agenda topics. On February 5, 2020, the MRC can expect to participate in discussion on the responses received from the policy input request.

Attachment
January 2, 2020

Mr. Greg Ford, Chair
NERC Member Representatives Committee

Dear Greg:

I invite the Member Representatives Committee (MRC) to provide policy input on two matters of particular interest to the NERC Board of Trustees (Board) as it prepares for its February 5-6, 2020, meetings in Manhattan Beach, California. In addition, policy input is requested on any items on the preliminary agendas for the quarterly Board, Board Committees, and MRC meetings. The preliminary agendas are included in the MRC Informational Session agenda package (see Item 1) and are attached hereto (Attachment A). Because final agenda packages with background materials are posted after policy input is due, the MRC’s agenda includes an opportunity for MRC members to provide additional input to the Board on the final agenda and materials. As a reminder, please include a summary of your comments in your response (i.e., a bulleted list of key points) for NERC to compile into a single summary document to be provided to the Board for reference, together with the full set of comments.

Electromagnetic Pulse Strategic Recommendations

Protecting the bulk power system (BPS) and achieving effective reduction of reliability risk is integral to the Electric Reliability Organization mission. Recognizing the risk potential from electromagnetic pulses (EMPs), NERC launched an effort to better understand reliability concerns associated with EMPs and to identify ways to enhance resilience in the face of these concerns. NERC created the EMP task force in April 2019 to identify key issues and scope opportunities for action. At its November 2019 meeting, the Board accepted the EMP task force’s report that included a series of strategic recommendations. Recognizing the broad expanse of the recommendations in the report and NERC’s focus on effectiveness and efficiency, the Board asked NERC staff to propose which recommendations should be pursued first and EMP priorities for the ERO Enterprise for the long term. In response, NERC staff is recommending that the EMP Task Force should be maintained and serve under the new Reliability and Security Technical Committee (RSTC) with a specific workplan. NERC staff also proposes the following priorities for addressing the other recommendations in the report. Each section is provided in prioritized order. Items that NERC staff has identified as the highest overall priority, and thus should be addressed in the near term, are provided in bold.
Policy priorities:

1. **The EMP Task Force should establish performance expectations for the BPS regarding a predefined EMP event. NERC staff will work with other agencies on areas that require coordination.**

2. The EMP Task Force should develop guidance for the electric industry on interdependent utility sector coordination related to an EMP event.

3. The ERO Enterprise should develop educational materials about EMPs and their impact to electronic devices and BPS stability to inform industry and other interested parties.

Research and Development priorities:

1. **The ERO Enterprise should support additional research to close existing knowledge gaps into the complete impact of an EMP event to understand vulnerabilities, develop mitigation strategies, and plan response and recovery efforts.**

2. The EMP Task Force should work with other standards setting organizations (e.g. IEEE, Underwriters Laboratories) to designate equipment specifications for the electric sector utility industry around EMP hardening and mitigation strategies.

3. The ERO Enterprise should monitor and communicate to the industry research pertaining to EMP and EMP-related national security initiatives that impact the BPS.

Vulnerability Assessments priorities:

1. **The ERO Enterprise should develop tools and methods for system planners and equipment owners to use in assessing EMP impacts on the BPS.**

2. **The EMP Task Force should provide guidance to industry on how to identify and prioritize hardening of assets that are needed to maintain and restore critical BPS operations.**

Mitigation Guideline priorities:

1. The EMP Task Force should develop guidelines for industry to use in developing strategies for mitigating the effects of an EMP on the BPS (control centers/plant controls, substations, and power plants).

Response and Recovery priorities:

1. **The EMP Task Force should develop guidance for supporting systems and equipment (including spare equipment strategy) needed for BPS recovery in a post-EMP event.**

2. The EMP Task Force should develop response planning guidelines for EMP event pre and post-contingency actions that aligns with plans of applicable regulatory authorities.

3. The EMP Task Force should develop criteria to incorporate into operating plans and procedures and system restoration plans actions pertaining to EMP event.
4. The RSTC should develop training for system and plant operators about EMP events and consider incorporating EMP events in coordinated industry exercises to test response planning and system restoration recovery efforts.

5. The ERO Enterprise should work with the appropriate agencies to develop a real-time national notification system for the electric sector to System Operators and Plant Operators pertaining to an EMP event and its parameters.

The ERO Enterprise will facilitate conversations with appropriate agencies to encourage the development of solutions to the following policy matters outside of its scope:

- Cost recovery mechanisms for planning, mitigation, and recovery plans required to be developed.
- Access to necessary research by key industry personnel with security clearances (at the appropriate levels) conducted by the National Labs, Defense Threat Reduction Agency, and any additional third-party research on electric utility equipment by the Department of Energy.
- Access to industry-relevant information on E1, E2, and E3 EMP environments and other necessary related research.

The Board requests MRC policy input on the following:

1. Do you agree with the recommendations above?
2. Do you agree with the priority levels proposed by NERC staff to address the recommendations?
3. Are there any additional recommendations related to EMP that the Board should consider?

Supply Chain Risk Assessment

In 2017, NERC developed new and revised CIP Reliability Standards to help mitigate cyber security risks associated with the supply chain for high and medium impact BES Cyber Systems. These standards, collectively referred to as Supply Chain Standards, consist of new Reliability Standard CIP-013-1 and revised Reliability Standards CIP-010-3 and CIP-005-6. Consistent with the risk-based framework of the NERC CIP Reliability Standards, the Supply Chain Standards will be applicable to the highest-risk systems that have the greatest impact to the grid. The Supply Chain Standards will require entities that possess high and medium impact BES Cyber Systems to develop processes to ensure responsible entities manage supply chain risks to those systems through the procurement process, thereby reducing the risk that supply chain compromise will negatively affect the BPS.

When adopting the Supply Chain Standards in August 2017, the NERC Board directed NERC to undertake further action on supply chain issues. Among other things, the Board directed NERC to study the nature and complexity of cyber security supply chain risks, including those associated with low impact assets not currently subject to the Supply Chain Standards and develop recommendations for follow-up actions that will best address identified risks. To better understand these risks, NERC collected data from registered entities pursuant to a request for data or information under Section 1600 of the NERC Rules of Procedure.
Based on the analysis of the data request outlined in the Supply Chain Risk Assessment (Attachment B), NERC staff is recommending modification of the Supply Chain Standards to include low impact BES Cyber Systems with remote electronic access connectivity.

The Board requests MRC policy input on the following:

1. Do you agree with the recommendation?
2. Is there an alternate way to address the identified risk in a more cost effective manner?

Written comments in response to the input requested above, the preliminary agenda topics, and on other matters that you wish to bring to the Board’s attention are due by January 22, 2020, to Kristin Iwanechko, MRC Secretary (Kristin.Iwanechko@nerc.net). The formal agenda packages for the Board, Board Committees, and MRC meetings will be available on January 23, 2020, and the presentations will be available on January 30, 2020. The Board looks forward to your input and discussion of these matters during the February 2020 meetings.

Thank You,

Roy Thilly, Chair
NERC Board of Trustees

cc: NERC Board of Trustees
    Member Representatives Committee
EMP Strategic Recommendations

Action
Information

Background
Protecting the Bulk-Power System and assuring effective reduction of reliability risk is integral to the Electric Reliability Organization (ERO) mission. Recognizing the risk potential from electromagnetic pulses (EMPs), NERC launched efforts to identify reliability concerns associated with EMPS and potential methods for promoting resilience. NERC created the EMP task force in April 2019 to identify key issues and scope areas of improvement for the industry. The task force was announced at the May Member Representative Committee meeting, and since then the task force has conducted numerous meetings, including a technical workshop in July.

At its November 2019 meeting, the Board accepted the EMP task force’s report that included a series of strategic recommendations. Recognizing the broad expanse of the recommendations in the report and NERC’s focus on effectiveness and efficiency, the Board asked NERC staff to propose which recommendations should be pursued first and EMP priorities for the ERO Enterprise for the long term.

Summary
NERC staff recommends that the EMP Task Force be maintained and serve under the new Reliability and Security Technical Committee (RSTC) with a specific workplan.

NERC staff also proposes the following priorities for addressing the other recommendations in the report, listed in order of priority (high to low) for each recommendation area. Items that NERC staff has identified as the highest overall priority, and thus should be addressed in the near term, are provided in **bold**.

Policy priorities:

1. The EMP Task Force should establish performance expectations for the BPS regarding a predefined EMP event. NERC staff will work with other agencies on areas that require coordination.

2. The EMP Task Force should develop guidance for the electric industry on interdependent utility sector coordination related to an EMP event.

3. The ERO Enterprise should develop educational materials about EMPs and their impact to electronic devices and BPS stability to inform industry and other interested parties.

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1. The ERO Enterprise should support additional research to close existing knowledge gaps into the complete impact of an EMP event to understand vulnerabilities, develop mitigation strategies, and plan response and recovery efforts.
2. The EMP Task Force should work with other standards setting organizations (e.g. IEEE, Underwriters Laboratories) to designate equipment specifications for the electric sector utility industry around EMP hardening and mitigation strategies.

3. The ERO Enterprise should monitor and communicate to the industry research pertaining to EMP and EMP-related national security initiatives that impact the BPS.

Vulnerability Assessments priorities:

1. **The ERO Enterprise should develop tools and methods for system planners and equipment owners to use in assessing EMP impacts on the BPS.**

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3. The EMP Task Force should develop criteria to incorporate into operating plans and procedures and system restoration plans actions pertaining to EMP event.

4. The RSTC should develop training for system and plant operators about EMP events and consider incorporating EMP events in coordinated industry exercises to test response planning and system restoration recovery efforts.

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The ERO Enterprise will facilitate conversations with appropriate agencies to encourage the development of solutions to the following policy matters outside of its scope:

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- Access to necessary research by key industry personnel with security clearances (at the appropriate levels) conducted by the National Labs, Defense Threat Reduction Agency, and any additional third-party research on electric utility equipment by the Department of Energy.

- Access to industry-relevant information on E1, E2, and E3 EMP environments and other necessary related research.
MRC Policy Input
The Board requested MRC policy input on the following:

1. Do you agree with the recommendations above?
2. Do you agree with the priority levels proposed by NERC staff to address the recommendations?
3. Are there any additional recommendations related to EMP that the Board should consider?

A summary of the policy input received will be provided.
Supply Chain Risk Assessment

**Action**
Information

**Background**
In 2017, NERC developed new and revised CIP Reliability Standards to help mitigate cyber security risks associated with the supply chain for high and medium impact BES Cyber Systems. These standards, collectively referred to as Supply Chain Standards, consist of new Reliability Standard CIP-013-1 and revised Reliability Standards CIP-010-3 and CIP-005-6. Consistent with the risk-based framework of the NERC CIP Reliability Standards, the Supply Chain Standards will be applicable to the highest-risk systems that have the greatest impact to the grid. The Supply Chain Standards will require entities that possess high and medium impact BES Cyber Systems to develop processes to ensure responsible entities manage supply chain risks to those systems through the procurement process, thereby reducing the risk that supply chain compromise will negatively affect the bulk power system.

When adopting the Supply Chain Standards in August 2017, the NERC Board directed NERC to undertake further action on supply chain issues. Among other things, the Board directed NERC to study the nature and complexity of cyber security supply chain risks, including those associated with low impact assets not currently subject to the Supply Chain Standards and develop recommendations for follow-up actions that will best address identified risks. To better understand these risks, NERC collected data from registered entities pursuant to a request for data or information under Section 1600 of the NERC Rules of Procedure.

Based on the analysis of the data request, NERC staff recommends modification of the Supply Chain Standards to include low impact BES Cyber Systems with remote electronic access connectivity.

**Summary of Analysis of Data Provided under Section 1600 Data Request**
The assessment documents the results of the analysis of the data to understand the implications of supply chain vulnerabilities not covered by the Supply Chain Standards and the extent of potential impacts (likelihood and risks to the BES).

One observation from NERC staff’s analysis was that most low impact assets reside in organizations with higher impact assets that are applicable to the approved Supply Chain Standards. This means that the low impact assets may be subject to the entity’s supply chain risk management program, and the entity would already have processes necessary to address supply chain vulnerabilities. However, many responders to the data request stated that their low impact BES Cyber Systems would be unaffected by the implementation of their supply chain risk management processes for high and medium impact assets, especially where they used separate vendors to supply low impact assets. The finding is not aligned with the

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expectation, stated in the May 2019 NERC staff report, that entities that have medium or high impact BES Cyber Systems will voluntarily apply CIP-013-1 Requirement R1 supply chain risk management plans to low impact BES Cyber Systems.

The analysis also showed that, while an individual compromise to any one low impact BES Cyber Asset location would generally be a localized event, a coordinated cyberattack with control of multiple locations could result in an event that has an interconnection wide BES reliability impact.

The vast majority of transmission station and substation low impact BES Cyber Assets are at locations that have at most only one line greater than 300 kV or two lines greater than 200 kV (but less than 300 kV). Similarly, the vast majority of generation resource low impact BES Cyber Assets are at locations that have less than 500 MW. As such, an individual compromise to any one of these locations (transmission substations or generation resources) would generally be a localized event. However, a coordinated cyberattack with control of multiple locations could result in an event that has an interconnection wide BES reliability impact.

One method to counter a coordinated cyberattack is to limit or eliminate third-party electronic access to these locations. Entities that have only low impact BES Cyber Systems allow third-party access to a significant number of their transmission stations and substations. While these locations represent a small percentage of all transmission stations and substation locations, the combined effect of a coordinated cyberattack on multiple locations could affect BES reliability beyond the local area.

The analysis of third-party electronic access to generation resource locations is even more concerning. More than 50% of all low impact locations of generation resources allow third-party electronic access. As with transmission stations and substations, the combined effect of a coordinated cyberattack could greatly affect BES reliability beyond the local area.

To address these risks, NERC staff recommended initiating a project to expand the scope of the Supply Chain Standards to include low impact BES Cyber Systems with remote electronic access connectivity.

The Board requested MRC policy input on NERC Staff’s recommendation to expand the scope of the Supply Chain Standards to include low impact BES Cyber Systems with remote electronic access connectivity. Questions included the following:

1. Do you agree with the recommendation?
2. Is there an alternate way to address the identified risk in a more cost effective manner?

A summary of the policy input received will be provided.

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**Additional Policy Discussion of Key Items from Board Committee Meetings**

**Action**
Discussion of specific items presented at the Board of Trustees (Board) Committee meetings. Staff presentations made at the Board Committee meetings will not be duplicated at the Member Representatives Committee (MRC) meeting.

**Summary**
On February 5, 2020, the MRC will have additional time for policy discussion, as part of its own agenda, to respond to the information that is presented during the Board Committee meetings.

The Board committee agendas and associated background materials will be posted on the following webpages approximately one week in advance of the meetings:

- Corporate Governance and Human Resources Committee
- Compliance Committee
- Finance and Audit Committee
- Technology and Security Committee
MRC Input and Advice on Board Agenda Items and Accompanying Materials

Action
Discussion

Background
Article VIII, Section 1 of the NERC Bylaws states that the MRC shall have the right and obligation to “provide advice and recommendations to the board with respect to the development of annual budgets, business plans and funding mechanisms, and other matters pertinent to the purpose and operations of the Corporation.”

In the policy input letter issued on January 2, 2020, the NERC Board of Trustees (Board) requested comments on the preliminary agenda topics for the February Board meeting that were reviewed during the January 9, 2020 MRC Informational Session. At the February 5, 2020, meeting, MRC members should come prepared to provide input on behalf of their sectors on the Board’s formal agenda package posted on January 23, 2020.
Update on FERC Reliability Matters

**Action**
Information

**Summary**
At the February 5, 2020, MRC meeting, Andrew Dodge, Director, Office of Electric Reliability, FERC, will provide an update on recent FERC activity.
Framework for Risk Management and Panel on Digitization

Action
Discussion

Background
During the last ten years, the ERO Enterprise has expanded its implementation of risk-based approaches across its program areas. During this transition, the ERO Enterprise has continued to lead industry in reliability, resilience, and security initiatives to identify known and emerging risks, and to engage industry in a collaborative approach to mitigating those risks. The primary reliability, resilience, and security toolkit for risk mitigation the ERO currently deploys includes, but is not limited to: outreach events such as webinars and conferences, Reliability Guidelines, Alerts, Reliability Standard development, registration and certification, and compliance monitoring and enforcement. In addition, the ERO Enterprise engages Forums such as the North American Transmission Forum (NATF) and the North American Generator Forum (NAGF), as well as the industry trade associations, to assist with development of best practices, increased awareness, Implementation Guidance, and other solutions used to address identified risks.

This session will focus on two items: 1) a draft framework to address known and emerging reliability and security risks, and 2) a panel that does a deep dive into an emerging risk: Implications of Digitization on Bulk Power System Reliability.

1. Draft framework to address known and emerging reliability and security risks
An agreed upon framework is needed to guide the ERO Enterprise in the prioritization of risks and provide guidance on the application of its toolkit, to inform resource allocation and project prioritization. Additionally, the framework should accommodate measuring residual risk after mitigation is in place, enabling the ERO Enterprise to evaluate the success of its efforts in mitigating risks, which provides a necessary feedback loop for future prioritization, mitigation efforts, and program improvements.

The successful reduction of risk is a collaborative process between the industry and ERO Enterprise. An agreed upon framework would provide a transparent process using industry experts in parallel with ERO Enterprise experts throughout the process, from risk identification to deployment of mitigation strategies to monitoring the success of these mitigations.

This presentation will provide a first view of a draft potential six-step framework, consistent with risk management frameworks used by other organizations and industries: 1) Risk Identification; 2) Risk Prioritization; 3) Mitigation Identification and Evaluation; 4) Deployment; 5) Measurement of Success; and 6) Monitoring. In addition, a potential impact/likelihood construct will be explored considering the application of the ERO Enterprise’s Reliability Risk Mitigation Toolkit.
2. **Implication of Digitization on Bulk Power System Reliability**
   
   During the 2019 Reliability Leadership Summit, sponsored by the Reliability Issues Steering Committee (RISC), the impacts of decarbonization, decentralization, and digitalization (3-D) on reliability was discussed. Further, the RISC’s [2019 ERO Reliability Risk Priorities Report](#) expanded on some of the elements of these themes.

   This panel will focus on exploring the implications of digitalization, recognizing the benefits, but also discussing the implications on reliability and security. This exploration will consider potential mitigations and provide advice on the way forward.