Agenda
Member Representatives Committee
May 10, 2017 | 1:00 p.m. – 5:00 p.m. Central

The Ritz-Carlton, St. Louis
100 Carondelet Plaza
St. Louis, MO 63105

Introduction and Chair’s Remarks

NERC Antitrust Compliance Guidelines and Public Announcement*

Consent Agenda

1. Minutes* - (Approve)
   a. February 8, 2017 Meeting
   b. April 13, 2017 Conference Call

2. Future Meetings*

Agenda Items

3. Board of Trustees Nominating Committee Update*

4. Responses to the Board’s Request for Policy Input*
   a. Special Reliability Assessments Under Consideration*
   b. Application of Cost Effectiveness Methods for Standards Development*

5. Additional Policy Discussion of Key Items from Board Committee Meetings*
   a. Corporate Governance and Human Resources Committee (May 4, 2017)
      i. 2017 ERO Enterprise and Corporate Metrics Update
      ii. NERC Governance Guidelines Amendment
   b. Standards Oversight and Technology Committee
      i. Registered Entities and ERO Enterprise IT Applications
      ii. Guidelines and Technical Basis Update
      iii. CIP-013-1 – Cyber Security – Supply Chain Risk Management
      iv. Reliability Standards Quarterly Status Report
   c. Compliance Committee
i. Consistency Framework Update  
ii. Compliance Monitoring and Enforcement Program Quarterly Report  

d. Finance and Audit Committee  
i. 2016 Audited Financial Statement  
ii. First Quarter Statement of Activities for NERC and the Regional Entities  
iii. 2018 Business Plan and Budget Update  

6. Strategic Planning*  
a. 2017 Reliability Leadership Summit Results  
b. ERO Enterprise Strategic Planning Update  
c. NERC and Regional Entity Board Strategic Planning Discussions  

7. E-ISAC Long-Term Strategic Plan*  

8. Accountability Matrix*  

9. Regulatory Update*  

*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.
Outgoing Chair Nabil Hitti, with incoming Chair John Twitty and incoming Vice Chair Jason Marshall present, called to order the North American Electric Reliability Corporation (NERC) Member Representatives Committee (MRC) meeting on February 8, 2017, at 1:17 p.m., Pacific. The meeting announcement, agenda, and list of MRC members in attendance are attached as Exhibits A, B and C, respectively.

Mr. Hitti thanked the MRC members, the NERC Board of Trustees, and Gerry Cauley for their support during his tenure on the MRC. He noted that many of the original goals for the ERO had been accomplished, and that the ongoing work of the ERO is a critical component of the overall energy infrastructure, with a direct effect on society and quality of life. Mr. Twitty recognized Mr. Hitti’s dedication and engagement with the MRC since standards became mandatory.

**Introduction and Chair’s Remarks**

Mr. Twitty welcomed new MRC members and attendees, and acknowledged the attendance of the Board, Michael Bardee and others from the Federal Energy Regulatory Commission (FERC), Murray Doehler from the Canadian Association of Members of Public Utility Tribunals, and State Commissioner David Clark.

Mr. Twitty recognized the MRC responses to the January 10, 2017 policy input request from Fred Gorbet, chairman of the Board. He reminded attendees that full presentations were conducted at the committee meetings and will not be repeated during the MRC meeting.

**NERC Antitrust Compliance Guidelines and Public Announcement**

Kristin Iwanechko, committee secretary, called attention to the NERC antitrust compliance guidelines and the public meeting notice. Any questions should be addressed to NERC’s general counsel, Charles Berardesco.

Ms. Iwanechko declared a quorum present with the following recognized proxies:

- Barry Lawson for Jay Bartlett – Cooperative Utility
- Bill Gallagher for David Osburn – Transmission-Dependent Utility
- Peter Brandien for Gordon van Welie – ISO/RTO
- David Clark for Asim Haque – State Government
Minutes

The MRC approved, on a motion by Sylvain Clermont and seconded by Carol Chinn, the draft minutes of its November 1, 2016 meeting in Atlanta and its January 17, 2017 conference call.

Election of NERC Trustees

Ken Peterson, chair of the Board of Trustees Nominating Committee (BOTNC), provided a report and recommendation for election of four Board members. The MRC unanimously approved the re-election of Janice Case, Fred Gorbet, and Roy Thilly and election of Deborah Parker for three-year terms ending in 2020.

Roadmap for Integrating Mexico into the ERO

Laura Hussey, director of international relations at NERC, reminded attendees that the Energy Policy Act of 2005, FERC Orders certifying NERC as the ERO, and the NERC Bylaws laid the foundation for integrating Mexico into the ERO. She also noted that representatives of the U.S. and Mexican governments signed a set of bilateral reliability principles on January 7, 2017, that are supportive of the international ERO framework. Ms. Hussey stated that NERC expects to execute a Memorandum of Understanding (MOU) with the appropriate Mexican parties in the near future. She noted that the MOU would be a relatively high-level document, with further details to be worked out as implementation progresses. Ms. Hussey discussed next steps after execution of the MOU, which could include potential changes to NERC Rules of Procedure and adding Mexican representation to committees. She added that Mexico has adopted ten standards so far and NERC is working on the process for filing standards with Mexico.

- An MRC member suggested leveraging lessons learned from Canadian experiences, as there may be similar challenges.
- An MRC member asked how Mexico would be integrated with the strategic planning process. Ms. Hussey stated that it is a bit early to have those discussions at this point, but envisions that they will be worked into the process over the next year.

Responses to the Board’s Request for Policy Input

Mr. Hitti acknowledged the MRC’s responses to Fred Gorbet’s January 10, 2017, letter requesting policy input on the ERO Enterprise strategic planning process and the next steps for the Distributed Energy Resources Task Force final report. The following comments on the policy input topics are not all inclusive, but provide the general tenor and scope of the discussion:

ERO Enterprise Strategic Planning Process

Mike Walker, senior vice president and chief financial and strategic development officer at NERC, noted the continued work of NERC and the Regional Entities to align strategic planning and business processes and supporting documentation. Mr. Walker provided an overview of policy input on suggested improvements to the strategic planning process and schedule enclosed in the background materials, stating that commenters were generally supportive of the adjustments, particularly with respect to shifting Reliability Issues Steering Committee (RISC) risk prioritization activities and the review of the strategic plan to every two years. In response to recommendations received, Mr. Walker recognized the
value of stakeholder input and review throughout the process, and the opportunity for stakeholder committees to provide input on the development of meaningful and measurable metrics. Also with respect to the metrics, Mr. Walker explained that the historical data for the existing metrics has been posted on the NERC website, and that NERC is working with the Regional Entities to make the historical data available on a regional basis. Mr. Walker added that, with respect to concerns that an ERO Enterprise long-term strategy should be bounded by the ERO’s statutory authority, the ERO Enterprise remains mindful of keeping resources focused on near-term priorities, but that the ERO Enterprise also has a role in assessing emerging risks that are identified through collaboration with the RISC.

- An MRC member acknowledged the great progress and transparent collaboration on the ERO Enterprise strategic planning process and documents, but that the metrics continue to need more conversation.
- An MRC member expressed agreement with CEA’s comment to create a visual representation of the inputs into the strategic planning process and NPCC’s suggestion for the RISC to consider cost considerations when developing the risk profiles.
- Mr. Gorbet thanked stakeholders for their policy input and stated that the suggestion to do the RISC and strategic planning activities on an alternating year schedule made sense and was worth exploring. Mr. Walker confirmed he would discuss with the RISC.

**Next Steps for Distributed Energy Resources Task Force (DERTF) Final Report**

John Moura, director of reliability assessment and system analysis at NERC, highlighted four major key findings identified in the DERTF final report: (1) DER penetration is rapidly increasing and altering the load mix; (2) technical and engineering challenges of integrating DERs on distribution systems are well understood, but the reliability implications on the bulk power system (BPS) are less so; (3) DERs will increasingly have capabilities for active power control and reliability services; and (4) consideration of fundamental changes to modeling, planning, and operations and conventional assumptions. He also highlighted the recommendations for next steps around reliability guidelines, data sharing, system modeling, DER component models, definitions, and industry collaboration.

Mr. Moura noted that the policy input received was supportive overall and in general, the DERTF agrees with the comments and recommendations made, including views on NERC’s role and when standards should be considered. Mr. Moura noted that the DERTF final report is being presented to the Board the next day for acceptance and the DERTF would be disbanded. He also discussed the plan for coordination and outreach with NARUC and other state regulators, FERC, provincial regulators, the Department of Energy, inverter manufacturers and researchers, and the NERC Planning and Operating Committees. Mr. Moura added that videos similar to those that were developed for the essential reliability services report would be developed to support the DERTF report.

- A Board member appreciated that next steps for this report were coordinated with policy input and suggested that similar reports in the future might benefit from a similar approach.
- MRC members praised the report and noted appreciation for NERC’s leadership in this area.
An MRC member asked if there is another group that will be responsible for following DER. Mr. Moura noted that a lot of the expertise is retained within the Essential Reliability Services Working Group (ERSWG).

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

Attendees did not have any additional comments in response to the discussions from the Standards Oversight and Technology Committee and Compliance Committee meetings. Attendees shared the following comments in response to the discussions at the Finance and Audit Committee and Corporate Governance and Human Resources Committee meetings.

**Finance and Audit Committee**

- Scott Jones, vice president, corporate treasurer, and director of finance and administration at NERC, noted that the Board has requested an increased focus on reserves and cash management at NERC and across the ERO Enterprise. The challenge to managing cash levels is timing—the Regional Entity budgets are finalized fairly early in the year and the NERC budget is filed with FERC in August, limiting the opportunity for adjustments against reserves later in the year. Consideration is being given to a process submission of Board-approved budgets to FERC, but with an option for NERC and Regional Entities to reassess reserve levels after the budget filing and when there is additional visibility into the projected year end reserve levels, allowing NERC and the Regional Entities to reduce assessment levels as appropriate. Mr. Jones emphasized that this would not be a mandatory process, but an option for NERC and each of the Regional Entities.

**Corporate Governance and Human Resources Committee**

- A Board member thanked NERC staff and the Regional Entities for their effort in revising the metrics this year.
- An MRC member suggested that the Board should review its independence and conflict of interest review processes, given the changing industry dynamics and the potential for new industry participants.
- A Board member highlighted a theme around transparency and noted that it means different things to different people. The Board member suggested thinking about how the work of sub-groups (e.g., MRC business plan and budget input group) is transparent.

**Update and Schedule of Near-Term Reliability Assessments**

Mr. Moura provided an update on the upcoming reliability assessments, noting that the work being done by the RISC and MRC has provided valuable input to the determination of future assessments. He noted that the RISC recommendations identify the following four high and medium risks that should be assessed: changing resource mix, BPS planning, resource adequacy and planning, and extreme natural events. Mr. Moura noted that, for 2017, there are three periodic reliability assessments (long-term reliability assessment, summer assessment, and winter assessment) and at least three special assessments planned for 2017. For 2018, Mr. Moura noted that the three periodic assessments would be conducted, but topics for special assessments have not yet been selected. However, he added that NERC
plans to conduct a smaller assessment on the 2017 solar eclipse. He noted that ERO Enterprise staff maintains a list of topics to be considered for special assessments. Mr. Moura reviewed the current list and requested MRC input on the highest priority topics to be considered by the ERO Enterprise.

- MRC members supported topics identified for consideration, including sensitivities around resources penetrations and severe seasonal peaks, as well as accelerated nuclear retirements.
- An attendee noted that the RISC has recommendations based on changes and complexities with the system, and assessments should be conducted to help understand how to model and measure the system with those changes.

**Geomagnetic Disturbance Events (GMD) Research Work Plan Update**

Howard Gugel, senior director of standards and education at NERC, noted that a FERC order was issued requiring further actions to address GMD, including revisions to TPL-007-1 and conducting additional research and data collection. The revisions to TPL-007-1 include modifying the benchmark GMD event definition used for GMD assessments, requiring entities to collect GMD data, and establishing deadlines for Corrective Action Plans (CAPs) and mitigating actions to address identified GMD impacts. Mr. Moura reviewed the three-pronged approach, which includes the standard revision plan, research plan, and data collection and sharing plan. He noted that the research plan is due to be filed with FERC in May 2017 and is being developed with the assistance of the GMD Task Force (GMDTF). Mr. Moura reviewed the preliminary research plan proposal which would begin in Q3 2017 and preliminary timing of reviews.

**Inverter Disconnects During Transmission Disturbances**

James Merlo, vice president of reliability risk management at NERC, provided an overview of the Blue Cut wildfire in August 2016 that caused 13 500 kV line faults and two 287 kV line faults. All of these faults cleared normally, with roughly the same clearing time and magnitude, and four of the faults caused a loss of photovoltaic (PV) generation. While not a qualifying event in the ERO Events Analysis process, the occurrence was significant and unusual enough that the ERO requested an event report and is working with the engineers and planners at the California Independent System Operator and Southern California Edison (SCE) to better understand this first known major loss of renewable resources due to a transmission system disturbance. He identified the next steps, which include a NERC task force to further investigate potential causes and solutions, engaging inverter manufacturers to share challenges associated with some of the existing frequency and voltage measurement techniques, and developing guidance as information and solutions become available. John Pespisa, director of operational compliance at SCE, added that NERC looking at DER impacts is very timely, as there is very little controllability to what DERs do from an operational perspective.

**Cyber Automated Information Sharing System (CAISS) Overview**

Marc Sachs, senior vice president and chief security officer at NERC, provided an overview of CAISS which allows the Electricity Information Sharing and Analysis Center (E-ISAC) to rapidly disseminate technical information about cyber and physical attacks using a computer-based sharing and analysis system. CAISS is currently being piloted, as requested by the Electricity Subsector Coordinating Council (ESCC) and the results of the pilot will be integrated in a future platform that should be launched later this year. Mr. Sachs noted that there were ten initial participants, with more joining since the beginning of 2017. Any
entities interested in participating should contact Mr. Sachs or E-ISAC operations. Mr. Sachs added that cost is minimal for those that want to participate; NERC is paying for the back-end services and participants are responsible to pay for any hardware or software needed at users’ sites. He reviewed the technologies behind CAISS and reviewed screenshots of the ThreatConnect platform, which is the front-end user interface.

**Update on FERC Reliability Matters**
Mike Bardee, director of the office of reliability at FERC, provided an overview of several FERC reliability activities.

**Fixing America’s Surface Transportation Act (FAST Act) and Critical Energy/Electric Infrastructure Information (CEII) Final Rule**
Mr. Bardee noted that FERC issued a final rule on November 17, 2016, amending its regulations to add processes for the designation, protection, and sharing of CEII. FERC also clarified non-public and CEII treatment for data downloaded from NERC databases. Mr. Bardee noted that the final rule becomes effective as of February 21, 2017.

**Primary Frequency Response**
Mr. Bardee noted that FERC issued a Notice of Proposed Rulemaking (NOPR) on November 11, 2016, proposing to amend the large and small generator interconnection agreements to: (1) require all new generating facilities to install, maintain and operate functioning governor or equivalent controls; and (2) incorporate certain operating requirements including maximum droop and deadband parameters and sustained response provisions. He noted that the comment period closed on January 24, 2017, and the next step will be to develop a final rule.

**Remedial Action Schemes**
Mr. Bardee noted that FERC issued a NOPR on January 19, 2017, proposing to approve PRC-012-2, but requesting clarification that it would not supersede TPL-001-4. He noted that comments will be due sixty days after publication in the *Federal Register*.

**BAL-002-2 Final Rule**
Mr. Bardee noted that FERC issued a final rule on January 19, 2017, approving BAL-002-2 and directing modifications regarding extensions of the 15-minute period for Area Control Error recovery. FERC also directed NERC to collect and report data on MW losses and resets after Reportable Balancing Contingency Events, and to study and report on risks of most severe single contingency exceedances that do not cause energy emergencies.

Mr. Bardee also noted that FERC does not currently have a quorum of commissioners, and thus cannot act on a number of items, but can act on certain matters where staff has delegated authority and nonsignificant routine matters. He also noted that FERC will not hold an open meeting of the commissioners until it regains a quorum.
Accountability Matrix
Ms. Iwanechko invited questions or comments regarding the accountability matrix included in the MRC agenda package, which is updated quarterly and captures key action items from the quarterly MRC and Board meetings and the policy input letter responses.

Regulatory Update
Mr. Berardesco invited questions or comments regarding the regulatory report, which highlights Canadian and Mexican affairs, as well as past and future significant FERC filings.

Future Meetings
The following are future dates for the MRC Pre-Meeting and Informational Sessions:

- April 13, 2017
- July 12, 2017
- October 12, 2017

The following are future NERC Board and MRC meetings dates and locations:

- May 10-11, 2017 – St. Louis, MO
- August 9-10, 2017 – Ottawa, Canada
- November 8-9, 2017 – New Orleans, LA

Adjournment
There being no further business, the meeting terminated at 4:34 p.m., Pacific.

Submitted by,

Kristin Iwanechko
Secretary
Draft Minutes
Member Representatives Committee
Pre-Meeting Informational Session
Conference Call and Webinar
April 13, 2017 | 11:00 a.m. - 12:30 p.m. Eastern

Introduction and Chair’s Remarks
Chair John Twitty, with Vice Chair Jason Marshall present, convened a duly-noticed open meeting by conference call and webinar of the North American Electric Reliability Corporation (NERC) Member Representatives Committee (MRC) on April 13, 2017, at 11:02 a.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 May 10-11, 2017, in St. Louis, Missouri. The meeting announcement and agenda are attached as Exhibits A and B, respectively.

NERC Antitrust Compliance Guidelines and Public Announcement
Kristin Iwanechko, committee 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 St. Louis was included in the agenda package.

Review of Proposed Board and Board Committees Meeting Agenda Items
Charlie Berardesco reviewed the preliminary agenda items for the Board and Board Committee meetings scheduled for May 10-11, 2017, in St. Louis, as well as those scheduled for conference calls prior to the May meetings, identified in the slide presentation included in the informational session agenda package (Exhibit C). Mr. Twitty encouraged MRC members to review all agenda materials for the Board and Board Committee meetings, once posted and available on April 27, 2017, and attend as many of these meetings as possible, in advance of the MRC’s meeting on May 10, 2017.

Review of Proposed MRC Agenda Items for May 10
Mr. Twitty reviewed the preliminary MRC agenda items for the upcoming May 10, 2017, meeting in St. Louis identified in the slide presentation included in the informational session agenda package (Exhibit C). Topics include:

- Board of Trustees Nominating Committee update;
- Discussion of the responses submitted to the policy input request from the Board;
- Additional discussion of the issues presented at the Board Committee meetings on May 4 and 10;
- Strategic planning:
2017 Reliability Leadership Summit results;
- ERO Enterprise strategic planning update;
- NERC and Regional Entity Board strategic planning discussions;
- Electricity Information Sharing and Analysis Center long-term strategy;
- Accountability matrix; and
- Regulatory update.

Policy Input Reminder
Mr. Twitty announced that the Board’s request for policy input was released on April 6, 2017, and responses are due by Wednesday, April 26, 2017, to Ms. Iwanechko. NERC staff provided updates on the following topics included in the policy input letter:
- Special reliability assessments under consideration; and
- Application of cost effectiveness methods for standards development.

Informational Items
NERC staff provided updates on the single points of disruption on natural gas infrastructure special assessment and plan for additional geomagnetic disturbance research.

Proxy Reminder
Proxy notifications for the May 10, 2017, meeting must be submitted in writing to Ms. Iwanechko.

Meeting Adjourned
There being no further business, the call was terminated at 12:26 p.m., Eastern.

Submitted by,

Kristin Iwanechko
Secretary
Future Meetings

Action
Information

Summary
The following are the future meeting dates for 2017 and 2018. The dates for the 2017 pre-meeting and informational webinars are also included below.

2017 Dates
July 12     Pre-Meeting and Informational Session
August 9-10  Ottawa, Canada
October 12   Pre-Meeting and Informational Session
November 8-9 New Orleans, LA

2018 Dates
February 7-8 Tampa/Southern California
May 9-10     Washington, D.C.
August 15-16 Calgary/Vancouver, Canada
November 6-71 Atlanta, GA

1 Please note that this follows an alternate date pattern, with open meetings on Tuesday and Wednesday.
Board of Trustees Nominating Committee Update

Action
Information

Summary
On February 24, 2017, MRC members were invited via e-mail to volunteer to serve on the Board of Trustees Nominating Committee (BOTNC) and the following MRC members were named by the Board of Trustees to the BOTNC.

1. John Twitty – MRC Chair
2. Jason Marshall – MRC Vice Chair
3. Sylvain Clermont – Federal/Provincial Utility
4. Greg Ford – Cooperative Utility
5. Bill Gallagher – Transmission-Dependent Utility
6. Lou Oberski – Regional Entity

Fred Gorbet, chair of the BOTNC, will provide a status report on the planned activities and schedule for the BOTNC.
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 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
On May 10, 2017, the MRC can expect presentations with additional information on the two policy input items at the MRC meeting: (1) special reliability assessments under consideration; and (2) application of cost effectiveness methods for standards development. The MRC can expect to participate in further discussion of the responses received from the policy input request that was distributed on April 6, 2017, and of the presentations given on the policy input items at the MRC meeting.

The items included in the policy input letter were presented at the MRC Pre-Meeting and Informational Session webinar on April 6, 2017.

Attachment
April 6, 2017, Board’s Letter Requesting Policy Input (without attachment1)

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1 The NERC Special Reliability Assessment Topics Under Consideration, March 2017 document is included as an attachment to Item 4a in this MRC agenda package instead of as an attachment to the policy input letter.
April 6, 2017

Mr. John Twitty, Chair  
NERC Member Representatives Committee

Dear John:

I invite the Member Representatives Committee (MRC) to provide policy input on two issues of particular interest to the NERC Board of Trustees (Board) as it prepares for its May 10-11, 2017, meetings in St. Louis, Missouri. Additional background information is included in the April 13, 2017 MRC Informational Session agenda package to help MRC members solicit inputs from their sectors. 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.

**Item 1: Special Reliability Assessments Under Consideration**

In addition to the long-term and seasonal reliability assessments, NERC conducts special assessments on emerging issues and trends that will influence future bulk power system planning, development, and system analysis. NERC leverages the technical expertise of industry experts as it develops its independent reliability assessments. In the past, special reliability assessment topics have included analysis of operational risks, evaluation of emergency response preparedness, adequacy of fuel supply, and topics related to the changing resource mix.

The ERO Enterprise maintain a list of assessment topics that are regularly reviewed in consideration for the development of special assessments (see Attachment A). NERC and Regional Entity staff receive input on this list from various sources, including, but not limited to, NERC’s technical committees, the MRC, the Long-Term Reliability Assessment, the State of Reliability Report, various Regional studies, and NERC’s Reliability Issues Steering Committee. NERC coordinates with the Regional Entities to develop a scope for each potential assessment, determine data collection needs and requirements, and identify technical groups and stakeholders that would ultimately support the development of the assessment. Using the list provided in Attachment A as a starting point, the Board is requesting the MRC members prioritize three special assessment topics with an explanation of their importance.

**Item 2: Application of Cost Effectiveness Methods for Standards Development**

Federal, state and provincial regulatory authorities, the Board, Regional Entity Boards, and many industry stakeholders have expressed interest in the identification and evaluation of costs incurred from implementing NERC Reliability Standards compared to risks they address. The goal is to ensure that these elements are appropriately considered during the Reliability Standards development and revision process. This objective is clearly important and also presents a difficult challenge since the costs may vary...
significantly from entity to entity and the risk addressed may be low but the potential impact very substantial. Those who will be subject to a proposed standard are in the best position to identify and quantify potential costs of the standard and to identify alternative approaches to achieving the standards goals at a lower cost. The same is true when evaluating costs after a standard has been in effect to learn from actual experience. It is very important to the success of this initiative that registered entities comment as specifically as possible during the standard authorization request, standards development and periodic review processes on this issue.

NERC staff and the Standards Committee are committed to continuing to develop ideas and approaches to consider cost effectiveness of Reliability Standards. Efforts to address costs have included the initial version of the NERC Cost Effective Analysis Process (CEAP) and a proposed cost effectiveness method. The Standards Committee and NERC staff have included questions that seek public comment on the cost effectiveness of existing Reliability Standards during periodic reviews. These questions help capture implementation and compliance costs for entities, providing a more complete picture of costs incurred that may be helpful in terms of modifying the standard and in developing other standards. Additionally, standard drafting teams will now include questions seeking specific comments on cost effectiveness considerations, including lower cost alternative approaches that achieve the reliability object of the proposed standard, during public comment periods of proposed new and revised Reliability Standards and ask for specific examples that can be used to support decisions in the development of the standard. These comments will be identified in the presentation material provided to the Board when the standard at issue is presented for adoption. An overview of these initiatives will be presented at the MRC Informational Session on April 13, 2017, and is included in the posted agenda package. The Board requests MRC policy input on the current and proposed cost-effectiveness activities, including whether they are sufficient or if additional approaches should be considered.

The full agenda packages for the Board, Board Committees and MRC meetings will be available on April 27, 2017. I encourage the MRC to review the agenda materials for the May 2017 Board and MRC meetings and offer any additional input that is meaningful and timely to industry and stakeholders.

Written comments should be sent to Kristin Iwanechko, MRC Secretary (Kristin.Iwanechko@nerc.net) by April 26, 2017, for the Board to review in advance of the meetings scheduled for St. Louis.

Sincerely,

Roy Thilly, Chair
NERC Board of Trustees

cc: NERC Board of Trustees
Member Representatives Committee
Special Reliability Assessments Under Consideration

Action
Information

Background
Recommendations contained in the reports from NERC’s Reliability Issues Steering Committee (RISC) identify priority risks that should be assessed by NERC, which are inputs into both NERC’s business and strategic plans, but also considered by NERC staff in identifying potential reliability assessment activity. At a high-level, RISC identifies the following high and medium risks the ERO should continue to assess:

- Changing Resource Mix
- Bulk Power System Planning
- Resource Adequacy and Performance
- Extreme Natural Events

The recommendations identify assessment topics to be considered by the ERO, including:

- Assess and conduct interconnection-wide studies, such as frequency and inertia response, voltage support, system strength, and inter-area oscillation assessments.
- Assess risks associated with single points of disruption of natural gas as well as uncertainty of supply.
- Assess distributed energy resources in an effort to improve visibility, predictability, and the dispatchability needed to support bulk power system reliability.
- Assess proposed regulatory rules or statutes as well as any significant tariff rules related to the changing resource mix.
- Assess resource adequacy using probabilistic-based approaches.

The recommendations highlight the importance of conducting independent assessments through a stakeholder input and outreach process, informing and educating policy makers and industry leaders of reliability consequences, and pursuing recommendations that help assure a reliable bulk power system as the resource and load mix changes.

Special Assessments Under Consideration
The ERO maintains a list of special assessment topics being considered to pursue. Input to this list comes from various sources, including but not limited to, technical committees, the Long-Term Reliability Assessment, State of Reliability Report, various Regional assessments and studies, and the RISC’s prioritized risks and recommendations. NERC and the Regions develop a scope for each potential assessment, determine data collection needs, schedule requirements, and technical groups and stakeholders that will ultimately support the assessment.

Attachment A
- NERC Special Reliability Assessment Topics Under Consideration, March 2017
In addition to the long-term and seasonal reliability assessments, the North American Electric Reliability Corporation (NERC) conducts special assessments on emerging issues and trends that will influence future Bulk Power System (BPS) planning, development, and system analysis. NERC leverages the technical expertise of industry experts as it develops its independent reliability assessments. In the past, special reliability assessment topics have included analysis of operational risks, evaluation of emergency response preparedness, adequacy of fuel supply, and topics related to the changing resource mix.

The Electric Reliability Organization (ERO) Enterprise maintains a list of assessment topics that are regularly reviewed in consideration for the development of special assessments. NERC and Regional Entity staff receive input on this list from various sources, including, but not limited to, NERC’s technical committees, the Member Representatives Committee, the Long-Term Reliability Assessment, the State of Reliability Report, various Regional studies, and NERC’s Reliability Issues Steering Committee (RISC). NERC coordinates with the Regions to develop a scope for each potential assessment, determine data collection needs and requirements, and identify technical groups and stakeholders that will ultimately support the development of the assessment.

**Special Assessments Currently Under Development**

- NERC Special Assessment: Natural Gas-Electric Interdependency – Single Point of Disruption (SPOD)

**Special Assessments Under Consideration**

- Accelerated Nuclear Retirements
- Contingency Response for Distributed Energy Resources and Other Inverter-Based Resources *
- Changing Resource Mix Impacts on Demand and Variable Resource Forecasting*
- Changing Resource Mix Impacts on Planning and Operational Reserves*
- Evaluation of Resource Adequacy Approaches*
- Capacity Value for Generation with Non-Firm Fuel*
- Changing End-Use Load Characteristics and Dynamic Load Modeling

*Topics based on 2016 RISC Recommendations*
## Accelerated Nuclear Retirements

Nuclear power plays an important role on the bulk power system as a reliable and large source of baseload power. Having no carbon emissions and very low variable costs, the nuclear fleet runs at very high capacity factors and displaces fossil fuel generation. While only a few new nuclear units are in the development pipeline, no additional units are planned to be built during the analysis period because of their very high capital cost. As the nuclear units age, industry, and state regulators have begun studying how long the existing nuclear units can be kept online. Although the risk of early retirement of nuclear plants for economic reasons is not the same in all regions, a number of regions are facing this as a potential issue now. Last year saw announcements of plant retirements in California, Illinois, Michigan, Massachusetts, New York, and Nebraska, and although state legislation has resulted in some of those decisions being reversed, plants in other states face the same pressures.

### Potential Analysis Approach

Perform an assessment to determine the impact of nuclear plants retiring in the near future, including what effect that will have on generation adequacy, essential reliability services, and impacts to fuel diversity and security. Possible approaches include:

- Scenario development
- Resource adequacy assessment
- Operational risk assessment
- Resource dispatch and commitment
- Qualitative assessment

### Issue Type

Emerging

## Contingency Response for Distributed Energy Resources and Other Inverter-Based Resources

High levels of distributed energy resources and other inverter-based resources could lead to operational challenges when these resources respond and interact with rapid changes on the bulk power system. Nonsynchronous generation technologies, such as solar photovoltaic or fuel cell resources, rely on their direct current (DC) to alternating current (AC) inverter technology to deliver energy to an AC system. DC to AC inverter electrical performance requirements are designed to protect the user (public) and the inverter equipment from electrical hazards as well as to offer capabilities necessary for the reliable operation of the power grid to which the nonsynchronous generators are connected. The commonly adopted governing requirements today are Underwriters Laboratory (UL) 1741 (2010) and (IEEE)’s 1547-2003. Because of these adopted standards, voltage and frequency performance of DER is currently not coordinated with BPS requirements. DER resources are not explicitly modeled as generating resources in operating and planning analysis tools either in real-time or off-line studies. Therefore, an event that causes a large amount of DER to isolate from the power grid could result in unpredicted behavior of the BPS.

### Potential Analysis Approach

Perform a scenario assessment at the interconnection level to determine the impacts on grid stability due to a large contingency of inverter-based resources. Conventional contingency analysis focuses on the outage of single elements, such as transmission lines and generators. However, inverter-based resources, depending on the control settings, may disconnect and/or reduce power output simultaneously in response to a system disturbance.

- Scenario development
- Power Flow and Dynamics
- Interconnection-wide Study.
- Qualitative assessment

### Issue Type

Emerging
### Changing Resource Mix Impacts on Demand and Variable Resource Forecasting

Despite slower load growth projections, the electric industry continues to face several challenges in forecasting electricity demand. Specifically, conservation programs, smart grid technologies, and DERs have complicated traditional load forecasting methods that were traditionally functions of weather conditions, economic cycles, and population growth. In addition to other variables, there is sufficient empirical evidence to suggest that correlations between load growth and economic outlook have diminished. New technologies, like advanced metering infrastructure, plug-in hybrid electric vehicles, and real-time pricing, may provide better quality load data to utilities. However, in the near term (one-to-five years), these technologies may further contribute to the uncertainty, due to changing residential customer behavior. As new variables are introduced to load forecasting models, further analysis will be necessary to gain a better understanding of the actual impacts and appropriately integrate them into short- and long-term load forecasting methods.

**Potential Analysis Approach:**
- Conduct an assessment of both demand and variable resource forecasting.
- Identify any trends in demand forecasting accuracy measured in multiple time domains, including day-ahead, season-ahead, multi-year forecast. Additionally, identify any trends in variable resource forecasting accuracy.
  - Scenario development
  - Forecasting assessment

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<thead>
<tr>
<th>Issue Type</th>
<th>Emerging</th>
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### Changing Resource Mix Impacts on Planning and Operational Reserves

VER plant variability and uncertainty can increase power system reserve requirements. While the impact can differ over various time frames, as VER increases, changes to regulation, load following, contingency, frequency response, and planning reserves should be evaluated. Uncertainty and variability in both load and conventional generation drive the reserve requirements. Analytical techniques for quantifying reserve requirements with high penetrations of variable renewable, especially wind, have been developed and can be used to determine future needs.

**Potential Analysis Approach:**
- Conduct an assessment of trends and latest analysis that focuses on how the changing resource mix can impact planning and operational reserve requirements. Identify best practices and current initiatives by industry to understand and address any potential concerns.
  - Scenario development
  - Operational risk assessment
  - Qualitative assessment

<table>
<thead>
<tr>
<th>Issue Type</th>
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</tr>
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<tbody>
<tr>
<td>Topic</td>
<td>Description</td>
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<tr>
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<tr>
<td><strong>Evaluation of Resource Adequacy Approaches</strong></td>
<td>The goal of bulk power system planning is to ensure that sufficient energy resources and delivery capacity exists to meet demand requirements in a reliable and economic manner. System planners use forecasts of future demand along with existing and planned resources to determine, on a probabilistic basis, if those resources will be sufficient to meet reliability targets. In addition to ensuring sufficient resources and capacity to meet demand under normal operating conditions, planners must also ensure adequate reserves exist to reliably serve demand under credible contingencies, such as the loss of a single generating unit or transmission line. The increasing penetration of variable generation resources makes it important to define “best practices” for quantifying the contribution of these resources to resource adequacy. The most common resource adequacy metrics are Loss-of-Load-Expectation (LOLE) and its more commonly used derivative metric; the Planning Reserve Margin. Because many variable generation sources have relatively low capacity credit relative to installed capacity, the relevance of the Planning Reserve Margin metric will be limited in systems with high penetrations of variable generation.</td>
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<td>Topic</td>
<td>Description</td>
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<tr>
<td>Capacity Value for Generation with Non-Firm Fuel</td>
<td>Standard resource adequacy models used by the electric industry generally consider generation and transmission outages as independent events. From a pure statistical and modeling perspective, increasing positive dependence between uncertain parameters is typically expected to increase overall uncertainty (risk) of the system. Therefore, resource adequacy models that do not capture power–gas interdependence may underestimate the probability of loss of load. Modeling dependencies between random variables and simultaneously capturing the probability of extreme events occurring is paramount to creating a sound probabilistic resource adequacy model; the sole purpose of a probabilistic resource adequacy model is the ability to capture the impacts from extreme events. Additionally, the results of these assessments are used by Planning Coordinators to inform resource planning, to incentivize market participants by sending accurate price and reliability signals, or for use by state/provincial/local regulators. The assessment would be important for those entities that engage in planning for resource adequacy to understand the risks of fuel availability due to a common mode event. While there may be several strategies for reliability entities and generation operators to deal with non-firm fuel (both supply and transportation), including dual fuel capabilities and penalties for non-performance, an assessment as to whether such strategies (and others) are effective in maintaining levels of adequacy work. For example, there may be limits to secondary fuel supplies both as to the amount of supply and environmental limitations on run hours.</td>
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</tbody>
</table>

- Reliability review
- Qualitative assessment
- Scenario development
- Probabilistic assessment
<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
<th>Potential Analysis Approach</th>
<th>Issue Type</th>
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</thead>
</table>
|       | End-use loads are rapidly changing due to energy efficiency standards and economics. “Grid friendly” loads that exhibit electrical characteristics that support the power grid during abnormal conditions (such as faults) are being replaced with electronically coupled loads controlled by converter technology. These electronically coupled loads may not exhibit this “grid friendly” characteristic; rather, they tend to have controls that maintain constant power consumption regardless of system voltage or frequency (with current limiters for protection purposes). The make-up and characteristics of end-use load technology are continually and rapidly evolving with the continued penetration of electronically coupled loads such as electric vehicles, plug-in electric hybrids, higher efficiency single-phase air conditioners, compact fluorescent lighting, LED lighting, LCD and LED televisions, variable-frequency drives, and electronically commutated motors. Dynamic load models and modeling practices must evolve to capture the changing dynamics of the end-use loads to predict system behavior with the integration of electronically coupled loads. | Perform an assessment that highlights the evolving end-use load characteristics and the impacts they can have on BPS reliability. Possible approaches include:  
- Review of end-use load characteristics  
- Analysis of industry load model records  
- Dynamic load modeling and dynamic simulations | Emerging   |
Application of Cost Effectiveness Approaches in Standards Development

Action
Information

Background
Federal, state and provincial regulatory authorities, the NERC Board of Trustees, Regional Entities, and many industry stakeholders have expressed interest in the identification of costs incurred from implementing NERC Reliability Standards compared to risks they address. The goal is to ensure that these elements are appropriately considered during the Reliability Standards development and revision process.

In the past, determination of the costs from the implementation of NERC Reliability Standards have generally been implicitly considered through the development process, wherein detailed comments are sought, and modifications to proposed standards made, based on input from the ballot pool (which is a cross-section of interest participants). However, a desire for more direct measurement of costs has been raised by certain stakeholders, as well as many state regulators, for a multitude of reasons. For example, registered entities have articulated the need to estimate implementation costs for budgeting and rate case development. Additionally, many state regulators would like this information to determine consumer costs implications of reliability.

There are two basic questions that the consideration of the cost could address. The first is to determine the level of cost versus the reliability benefit to mitigate an identified risk. If the risk to the reliability of the Bulk Electric System (BES) is small or medium and infrequent, and the cost to prevent the potential harm is great, it may be prudent to require only restorative measures, rather than preventative actions. However, if the risk to the reliability is small and frequent, or medium/large with any frequency, and the cost to prevent harm from the potential risk is reasonable, it may be prudent to require preventative measures.

The second question that could be addressed is whether a particular Reliability Standard is, or can be, developed with the most cost effective solution. Typically, standards are drafted so registered entities have options regarding how to meet their requirements and those options represent a range of cost effective solutions. This consideration is embedded into the standards development process and industry stakeholders draft and ballot the proposed Reliability Standard, with the ability to provide comments.

Historical cost considerations in Reliability Standards development
NERC staff and the Standards Committee (SC) have remained committed to developing ideas and approaches to consider cost effectiveness of Reliability Standards. Efforts to address costs have included the initial version of the NERC Cost Effective Analysis Process (CEAP), a proposed Cost Effectiveness method presented at the February 10, 2016 Member Representatives Committee meeting, and inclusion of cost evaluation considerations in periodic reviews and standards grading activities.
The NERC CEAP was initiated from a cost effectiveness project in Northeast Power Coordinating Council, Inc. (NPCC). The NPCC Board of Directors expressed concern over expenditures incurred to comply with NERC Reliability Standards and NPCC Regional Reliability Standards, as well as NPCC’s regional criteria. In response, NPCC developed its Cost Effectiveness Analysis Procedure in 2011.

NERC stakeholders expressed interest in the concept, and in response the NERC SC initiated a project to develop a continent-wide process, building on the NPCC Cost Effectiveness Analysis Procedure. In October 2012 the NERC SC approved the CEAP for a pilot to establish feasibility. The process consisted of two phases:

- **Cost Impact Analysis (CIA)** – This phase collected estimated industry-wide cost impacts (implementation, maintenance, and ongoing compliance resource requirements) and evaluated potential reliability benefits of a proposed Reliability Standard.
- **Cost Effectiveness Analysis (CEA)** – This phase collected information about cost impacts (e.g., implementation, maintenance, and ongoing compliance resource requirements) of proposed Reliability Standards and their relative effectiveness, which would allow the industry to evaluate and propose alternative approaches for achieving the reliability objectives of the standard. This phase was conducted at the time of the first formal comment period and ballot of a proposed Reliability Standard.

Each phase of the process consisted of a set of surveys with questions to be responded to by the industry. Two standard projects in various stages of development were chosen to pilot the NERC process: PRC-025-1 and PRC-002-2. A number of lessons were learned during execution of the NPCC Procedure and the NERC pilots:

- The more detailed the data requested, the fewer responses the industry had time to provide. Excessive data collection proved overly burdensome to some entities. Industry expressed interest in costs, but didn’t always have the resources to help provide those costs when asked.
- The probability of a risk occurring and being mitigated by the standard was important to some, yet the CEAP pilot didn’t address whether the probability of a risk was low, medium, or high.
- In the view of some stakeholders, the CEAP should identify the value of the benefit of the standard, both from reliability and societal perspectives. Equipment based costs were relatively easy to obtain and estimate if done on a per-unit basis. Planning, training, and other non-equipment based costs were much more difficult to estimate. Some also suggested an industry-wide cost should be identified.
- Societal costs of not addressing risk was desired, but not considered in the pilot due to the complexity of the issues.
- Scope and cost estimates varied widely across participants.
- CEAP questions needed to be very clear and concise to yield measurable and comparable answers. A number of entities struggled to answer what was asked and sometimes the question was not interpreted correctly.
- Some expressed interest in an “off ramp” from the Standards approach and wanted projects with low probability risks/higher costs to be considered for guidelines instead
of Standards. The concern was that once a standard project was initiated, there was no clear avenue to go back and seek an alternate non-standards solution to a reliability issue once the standards process had started.

Based on these lessons learned, a proposed Cost Effectiveness method was developed in 2016. This proposal for developing cost evaluations during standard development consists of two phases. The first phase of cost analysis would be conducted prior to, or in conjunction with, the standard authorization request (SAR) stage of standard development. This would provide a high level analysis of the risk reduction to the BES being considered, as well as any potential egregious monetary and societal costs of not addressing the reliability risks. If the SAR drafting team believes there is a need to pose questions to the industry during the SAR drafting phase, they would clearly identify the reliability risk being mitigated and provide industry the opportunity to identify alternate methods to be captured in the standard that may achieve the reduction in risk to the BES in a cost-effective manner.

During the second phase of cost analysis, a mechanism would be established for collecting information from various types of registered entities that may have cost impacts associated with implementing a standard. Once a SAR has been accepted by the SC, the standard drafting team (SDT) would then initiate development of the Reliability Standard. They could initiate the cost assessment process by determining the types of registered entities that may incur an incremental cost burden based on the draft standard. The entities considered may be a functional entity, or a subset of a functional entity. The SDT could use available data to determine the number of such entities. The SDT could then seek a representative sample of volunteer registered entities willing to provide cost information, providing each of the volunteer entities with a questionnaire. The goal of this phase would be to collect information on the specific type of cost information requested, compiled on a per unit basis where possible. This may also include a range of costs to represent potential implementation solutions. For example, if there were three potential requirements that mitigate a risk, there would be three estimates of incremental cost, which would result in a range of costs. The SDT and NERC staff would compile the cost information provided by the volunteer entities for each category of entity, and would project the cost by the number of entities in each category to provide a continent-wide representative estimation. Anonymized cost information would be posted on the NERC standards project page, and would also be used to form a database for applications of future standard developments and periodic reviews.

**Project 2015-10: Single Points of Failure TPL-001** from the 2016-2018 Reliability Standards Development Plan was chosen to pilot the proposed Cost Effectiveness method. This project addresses two directives from FERC Order No. 786, and considers other improvements to TPL-001-4 — Transmission System Planning Performance Requirements. In the first phase, during the SAR development for this project, the SAR drafting team provided information about the FERC directives being addressed. They also requested that stakeholders identify the reliability risks to the BES from not addressing the issues identified in the FERC directives. Finally, they requested that stakeholders identify methods to reduce the identified BES risks in a cost-effective manner. The responses from stakeholders assisted the drafting team in refining the SAR and continuing the project to modify the standard. The SDT is currently drafting modifications to TPL-001-4, and will include questions to stakeholders about the cost effectiveness of their proposed solutions.
Current cost considerations in Reliability Standards development

The following activities are underway:

1. The periodic review process directly solicits an evaluation of the implementation costs. Industry feedback on implementation cost effectiveness is currently included in the final periodic review assessment.

2. In 2016, the SC added criteria measuring actual industry experience in the cost effectiveness of implementing approved standards as part of assessing requirement-level quality of each Reliability Standard (i.e., the grading metric).

3. NERC and the SC are considering additional standard development projects to further pilot the proposed Cost Effectiveness method developed in 2016.

Future cost consideration activities in Reliability Standards development

The following activities are planned for 2017:

1. Questions about cost effectiveness will be included in the public comment period during the periodic reviews. This transition will occur in 2017, while we simultaneously incorporate lessons learned from cost effectiveness pilots carried out during the past two years.

2. Historically, the questions posed during standard development comment periods have not focused directly on cost (though discussions and deliberations often occur during drafting team meetings). To ensure additional industry focus and input, SDTs will include questions about cost effectiveness considerations during future public comment periods to provide this perspective as part of drafting team assessment of the standard.

3. NERC will engage the SC to evaluate ways to incorporate into the periodic review template or team analysis cost effectiveness measures to comprehensively consider compliance and enforcement cost-impacts (including audits).

4. NERC staff will directly address cost effectiveness information when Reliability Standards are brought to the Board of Trustees for approval, by adding a section to the standard description, similar to the section on unresolved minority opinions. Additionally, NERC staff will present this information as part of the public description on the project website.
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 May 10, 2017, the MRC can expect to continue its increased participation and dialogue during the Board Committee meetings in St. Louis. 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 Committee meetings.

The Corporate Governance and Human Resources Committee will hold its open meeting via conference call on May 4, instead of meeting in-person in St. Louis. The agenda and associated background material is posted approximately one week in advance of the meeting on the following webpage:

[Corporate Governance and Human Resources Committee](#)

The May 10, 2017, Board committee agendas and associated background materials are posted on the following webpages:

[Standards Oversight and Technology Committee](#)

[Compliance Committee](#)

[Finance and Audit Committee](#)
Strategic Planning

Action
Information

Background
Over the past five years, NERC and the Regional Entities (the ERO Enterprise) have collaborated on the development of a three-year strategic plan to guide annual operational coordination, resource planning, allocation, and budgeting, and a set of metrics to measure progress in meeting the strategic plan goals. The most recent version of the ERO Enterprise Strategic Plan and Metrics was approved by the NERC Board of Trustees (Board) in November 2016.

In recognition of the increasing operational focus of the ERO Enterprise Strategic Plan, in Q4 2016, the Board, with the support of the regional leadership, recommended that (1) the strategic plan be renamed as an operational plan, and (2) efforts be undertaken to develop a long-term ERO Enterprise strategy to guide periodic operational plan updates. Recent progress in these areas is discussed below.

2017 Reliability Leadership Summit Results
The Reliability Leadership Summit (Summit) was held on March 21, 2017, in Washington, DC. The Summit featured three panels focused on the identification of risks in the following areas:

1. Challenges in operating the bulk power system
2. Resiliency and security
3. Emerging risks to reliability

Two keynote presentations were given: Federal Energy Regulatory Commission’s (FERC) Chair Cheryl LaFleur and Dr. Edmund Schweitzer. The Summit was rounded off with a facilitated open discussion session for attendees to share thoughts and ideas on the priority and significance of reliability risks. The Summit ended with closing remarks and observations provided by Mr. Gerry Cauley, president and chief executive officer of NERC.

On March 22, Reliability Issues Steering Committee (RISC) members reviewed common themes and takeaways they heard during the Summit to identify any gaps or potential adjustments to the current ERO Reliability Risk Priorities report (RISC report). The following themes were identified from the Summit and RISC member discussions:

- Overall, the current RISC report doesn’t appear to have any gaps in identified risks, but the pace of some of the risks may have accelerated.
- Risks related to Distributed Energy Resources (DER) was a prominent theme during the Summit, including the influence of digital-based systems, lack of situational awareness, planning methodologies and forecasting models, overlapping regulatory responsibilities and inconsistent policies, and changes on the distribution system affecting bulk power system reliability. The work and recommendations of the DER Task Force should be reviewed and leveraged accordingly.
• DER and changing technologies imply huge amounts of data, making data management and protection a risk.

• The RISC report should recognize the international aspect of policymaking.

• The profile in the RISC report related to “skilled workforce” may be more appropriately focused on the “changing workforce.” The skills required are evolving, including responsibilities related to compliance.

• There should be sensitivity to risk mitigation mechanisms for smaller utilities.

• Gas dependency and other common mode failures such as telecommunications continue to be prominent risks. Additionally, there should be a focus on the interdependencies of the 15 critical infrastructures.

• Despite the risks related to data protection, there are also risks related to not sharing data for learning and awareness purposes.

• There is opportunity for more input from the Regional Entities, particularly with respect to DER scenarios.

• Changes on the distribution systems that affect bulk power system reliability should be recognized.

• Opportunities for enhancements to the RISC report include identifying (1) more concrete recommendations; (2) the parties responsible for addressing the recommendations; (3) the right tools to address risks; and (4) the relationships among the profiles and their recommendations. Additionally, the prioritization of the risks needs to be reevaluated with respect to inherent versus residual risk.

RISC members also discussed next steps and the schedule for updating the RISC report for submission to the Board in February 2018. This date is a shift in the original timeline in order to respond to Member Representatives Committee (MRC) policy input to stagger the development of the RISC report and the ERO Enterprise Operating Plan in alternating years. Although the final report will be presented to the Board in February 2018, the RISC will have interim updates throughout the year to inform strategic and business planning processes in 2017. A complete draft report for stakeholder review is targeted for Q4 2017.

**ERO Enterprise Strategic Planning Update**

The current ERO Enterprise Strategic Plan will be rebranded in 2017 as the ERO Enterprise Operational Plan (Operational Plan). It is anticipated that the Operational Plan will retain the existing five goals, continue to include contributing activities, and progress in meeting the goals will be measured through the existing set of metrics, with measures reviewed and updated as necessary on an annual basis. ERO Enterprise leadership has begun to review the plan, and will work collaboratively over the next several months to refine the introductory sections, the contributing activities, and the metric measures for 2018. A draft of these updates will be completed and available for stakeholder review and comment in early Q3 2017, and a final version of the updated Operational Plan will be presented for approval by the Board at its open meeting in November.

Concurrently with the schedule for and development of the Operational Plan updates, ERO Enterprise leadership and the NERC and Regional Entity boards are working to develop a long-term strategy that looks beyond the near-term operational planning horizon. Based on
outcomes from the Summit and recent discussions among ERO Enterprise leadership, a number of emerging risks affecting the bulk power system have been identified that create new challenges for the ERO Enterprise, industry, regulators, and policymakers. Examples of these risks and challenges include but are not limited to micro grids and distributed energy resources, increased system complexity and increase in digital devices, aging infrastructure, creation of common mode failure points, increased generation dependence on natural gas infrastructure, changing environmental regulations, market structure impacts, resiliency expectations, and global threats in cyber and physical security. Leadership will continue to explore these risks and develop recommendations for strategic focus areas to inform a draft long-term strategy that will be available for stakeholder review along with the Operational Plan updates in early Q3 2017.

**NERC and Regional Entity Board Strategic Planning Discussions**
The NERC Trustees and Regional Entity Board officers will hold their semiannual meeting on May 9, 2017, which will include discussion on the strategic planning efforts noted above. Roy Thilly, NERC Board Chair, and Mr. Cauley will provide an update on these discussions.
E-ISAC Long-term Strategic Plan

Action
Information

Summary
From January through March, the E-ISAC, working closely with the Electricity Sub-Sector Coordinating Council (ESCC) and NERC leadership, assembled a long-term strategic plan. This plan builds on the ESCC’s 2015 recommendations and discusses improvements needed in 2017 to address current threats, a look at the mid-term range of 2018-2022 to address emerging threats, and what the E-ISAC might look like beyond 2023 if the forecasted issues continue to develop.

There is a strong desire across the electricity industry to transform the E-ISAC into an indispensable resource for security information sharing and analysis and to be the centerpiece for building a highly engaged community of security professionals. To carry forth this vision, the E-ISAC must undergo continuous improvement and evolution that reflects the changing threat landscape, changing technologies and business processes inside the industry, and changing customer expectations for a highly reliable and secure electricity infrastructure that is increasingly more integrated with insecure infrastructures, such as the public Internet. We must also bring the E-ISAC to a maturity level where industry completely trusts it to gather, hold, analyze, and distribute highly sensitive security information.

The long-term strategic plan recognizes the need for sound fiscal planning, recognizes the growing threats to the grid from human and cyber actors, and highlights the need for a more robust security information sharing and analysis capability within NERC.

Bringing the E-ISAC to these new performance levels will require additional resources for personnel, technology, and facilities above what has been budgeted in previous years. Resource requirements generated from the plan will become input to NERC’s 2018 Business Plan and Budget after completion of the current ongoing review process with the ESCC’s Member Executive Committee (MEC). The MEC was designated by the ESCC to provide input and guidance to NERC management and the NERC Board of Trustees regarding E-ISAC strategy and resources.

The MEC voted to approve the E-ISAC long-term strategic plan on April 24, 2017 and plans to provide a letter of support to NERC as input to the 2018 Business Plan and Budget process. The NERC Board of Trustees will vote on acceptance of the strategy on May 11, 2017.
Accountability Matrix

**Action**
Information

**Background**
The Accountability Matrix tracks key action items resulting from the quarterly MRC and Board of Trustee meetings and the policy input letter responses. The Accountability Matrix is updated quarterly and posted on the NERC website.

**Attachment**

1. Accountability Matrix – April 27, 2017
<table>
<thead>
<tr>
<th>Identifier</th>
<th>Topic</th>
<th>Summary of Commitment</th>
<th>Comments/Status</th>
<th>Open/Closed</th>
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</thead>
<tbody>
<tr>
<td>2016-05</td>
<td>Internal Controls Evaluations (ICE)</td>
<td>Increase registered entity engagement with internal controls evaluations.</td>
<td>The ERO Enterprise revised the Internal Controls Evaluation Guide, now the Guide for Internal Controls, in an effort to streamline the process and ensure the Guide is effective and efficient process for input into compliance oversight planning. The Guide also now considers how the ERO Enterprise understands internal controls throughout CMEP activities to help inform compliance monitoring decisions. Additionally, the ERO Enterprise is working with CCC to enhance registered entity understanding of the benefits of internal controls and how the use of internal controls supports compliance with the NERC Reliability Standards and overall reliability and security of the BPS. Education and outreach activities are occurring during 2017.</td>
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</tr>
<tr>
<td>2016-07</td>
<td>Consistency in the Coordinated Oversight Program of MRREs</td>
<td>Develop follow-up actions to ensure consistency and address lessons learned from the MRRE program.</td>
<td>During 2016, NERC and the Regional Entity executives approved a task force, made up of representatives from NERC and each Regional Entity, focused on enhancing the Coordinated Oversight Program for Multi-Region Registered Entities (MRREs). This ERO Enterprise task force developed procedures for conducting CMEP activities for registered entities involved in the Coordinated Oversight Program. By the first quarter of 2017, all Regional Entity staff completed training on these procedures. The procedures and associated training helps ensure consistency in the implementation of the Coordinated Oversight Program. Additionally, the ERO Enterprise task force continues to look for lessons learned and improvement opportunities for the program. For example, the task force is reviewing processes used for conducting Inherent Risk Assessments (IRAs) for registered entities in Coordinated Oversight to ensure a consistent and coordinated approach for IRAs and scoping compliance monitoring activities. The ERO Enterprise task force is also in the process of updating existing Frequently Asked Questions to help inform industry outreach needs. During the fourth quarter of 2017, the task force plans to conduct a second survey seeking stakeholder feedback to inform additional process improvements and outreach needs.</td>
<td>Open</td>
</tr>
<tr>
<td>2016-08</td>
<td>Confidentiality of Information</td>
<td>Ensure that controls are in place within the ERO Enterprise on handling sensitive information.</td>
<td>NERC has developed detailed policies regarding the handling of confidential information. The company also conducts regular employee training regarding these policies and overall expectations regarding the handling of confidential information. Each department also has procedures on the handling of any specialized types of confidential information which that department receives, develops and utilizes in its operations. The company is also implementing a document management program and supporting systems that will further enhance the procedures and controls on the handling of confidential information. In addition, the company has an information security program that contains robust controls over access to NERC’s IT systems, and maintains physical security procedures that addresses access to areas within NERC’s offices where confidential information is stored. Additionally, NERC’s internal audit department is conducting audits of the ERO Enterprise in 2016 that focus on how confidential information is handled. NERC Internal Audit has completed the Regional Entity audits, and the results are being reviewed with the EWRC. There were a number of leading practices identified that will be shared among the ERO Enterprise. Several improvement opportunities were identified that are being addressed.</td>
<td>Closed</td>
</tr>
<tr>
<td>2016-09</td>
<td>Metrics</td>
<td>Develop supplemental metrics that measure operational effectiveness.</td>
<td>A strawman of performance metrics for NERC will be included in the October policy input letter and presented at the MRC meeting in November. The performance metrics have evolved into a single metric on efficiency and effectiveness, with four measures. The NERC efficiency and effectiveness metric was approved by the Board at its February 2017 meeting. Proposed measures for ERO Enterprise efficiency and effectiveness for 2018 are being developed and will be presented later in 2017 for stakeholder review and comment.</td>
<td>Open</td>
</tr>
<tr>
<td>2016-12</td>
<td>Guidelines and Technical Basis for Standards</td>
<td>Clarify the intent of the 'Guidelines and Technical Basis' section of Reliability Standards.</td>
<td>NERC and Standards Committee leadership are working on finalizing the use of GTB moving forward. An update was provided at the February SOTC meeting. Another update will be provided at the May SOTC meeting.</td>
<td>Open</td>
</tr>
<tr>
<td>2017-01</td>
<td>Strategic Planning Process</td>
<td>Develop visual representation of inputs into the strategic planning process.</td>
<td>This will be addressed as part of the strategic planning updates to be provided in August and November 2017.</td>
<td>Open</td>
</tr>
<tr>
<td>2017-02</td>
<td>Auditor Credentials</td>
<td>Gather information on auditor credentials.</td>
<td>NERC is working with the Regional Entity Compliance Managers to determine the baseline of credentials currently held by ERO Enterprise audit staff. A review of these credentials will be conducted to determine if they address the requisite knowledge, training and skills to conduct Compliance audits that are identified in the Compliance Monitoring Competency Guide section of ERO Enterprise CMEP Manual.</td>
<td>Open</td>
</tr>
</tbody>
</table>
Update on Regulatory Matters
(As of April 26, 2017)

**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 [FERC 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. May 15, 2017 – 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*

2. May 30, 2017 – NERC will submit an informational filing on its research work plan that will address specific GMD-related research areas, per Order No. 830. *Docket No. RM15-11-000*

3. May 30, 2017 – NERC must submit the annual true-up filing report of comparisons of actual to budgeted costs for the year 2016 for NERC and the Regional Entities. *Pending Board approval*

   Pending Board approval

   Pending Board approval

7. July 3, 2017 – NERC will submit a remote access study report filing that identifies the strength of the Critical Infrastructure Protection (CIP) version 5 remote access controls, the risks posed by remote access-related threats and vulnerabilities, and appropriate mitigating controls, per Order No. 822. Docket No. RM15-14-000

**Mexican Energy Reforms**

In 2013 and 2014 Mexico’s legislature enacted comprehensive energy reforms, including functional unbundling of the previously vertically integrated state-owned utility; establishing a competitive electricity market; and establishing Mexico’s first mandatory reliability framework. Mexico has made steady progress in implementing these reforms, and work is ongoing.

In the first quarter of 2017, Mexico signed two agreements signifying its intent to cooperate with the United States on reliability and participate in the international ERO. The first, signed on January 7, 2017, is a set of bilateral reliability principles between Mexican and US energy officials. The second, signed on March 8, 2017, is a memorandum of understanding (MOU) between NERC, the Mexican Energy Regulatory Commission (CRE), and the Mexican electricity system and market operator (CENACE). The MOU signals the intent of the parties to work together to facilitate Mexico’s participation in the international ERO.

NERC and WECC will continue working with CRE and CENACE as the MOU is implemented. WECC and Mexican counterparts are continuing to develop a revised Membership and Operating Agreement (MOA) under which WECC performs certain functions in Baja California Norte.