Agenda
Member Representatives Committee
May 4, 2016 | 1:00–5:00 p.m. Central
The Westin Chicago River North
320 North Dearborn Street
Chicago, IL 60654

Introduction and Chair’s Remarks

NERC Antitrust Compliance Guidelines and Public Announcement*

Consent Agenda
1. Minutes* - Approve
   a. February 10, 2016 Meeting
   b. April 6, 2016 Conference Call
2. Future Meetings*

Regular Agenda
3. Board of Trustees Nominating Committee Update*
4. Responses to the Board’s Request for Policy Input*
   a. Assessing Reliability for an Evolving Bulk Power System*
   b. ERO Enterprise Strategic Planning Framework*
5. Additional Policy Discussion of Key Items from Board Committee Meetings*
   a. Corporate Governance and Human Resources Committee (April 27, 2016)
      i. 2016 Quarter 1 Corporate Goals Update
      ii. NERC Governance Guidelines Annual Review
   b. Standards Oversight and Technology Committee
      i. Major IT Initiatives for 2017 and Preliminary Budget
      ii. NERC and ERO Enterprise IT Projects Update
      iii. Registered Ballot Body Update
      iv. Reliability Standards Quarterly Status Report
   c. Compliance Committee
i. CIP Implementation
ii. Compliance Guidance Implementation
iii. Coordinated Oversight of Multi-Region Registered Entities
iv. Compliance Monitoring and Enforcement Program Quarterly Report
d. Finance and Audit Committee
   i. 2015 Audited Financial Statement
   ii. First Quarter Unaudited Statement of Activities for NERC and the Regional Entities
   iii. 2017 Business Plan and Budget Update

6. Cost-Effectiveness Approach and Pilot*

7. Reliability Assessments and Performance Analysis
   a. Clean Power Plan: Phase II Assessment*
   b. Gas-Electric Interdependency Special Assessment*
   c. 2016 State of Reliability Report*

8. Current FERC Reliability Activities*
   a. Essential Reliability Services
   b. Security of the Grid
   c. Data Sharing

9. Accountability Matrix*

10. 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.
Draft Minutes
Member Representatives Committee
February 10, 2016 | 1:00–5:00 p.m. Eastern

Hyatt Regency Sarasota
1000 Boulevard of the Arts
Sarasota, FL 34236

Outgoing Chair Sylvain Clermont, with incoming Chair Nabil Hitti and incoming Vice Chair John Twitty present, called to order the North American Electric Reliability Corporation (NERC) Member Representatives Committee (MRC) meeting on February 10, 2016, at 1:03 p.m., Eastern. The meeting announcement, agenda, and list of MRC members in attendance are attached as Exhibits A, B and C, respectively.

Mr. Clermont thanked MRC members, noting that many discussions took place over the last year in a positive, constructive way that hopefully provided value to the NERC Board of Trustees in their decision-making process. He thanked MRC members for their increased participation during meetings and encouraged that to continue. Mr. Clermont also thanked the NERC Board of Trustees (Board) and NERC staff for their support over the past year. Fred Gorbet, chair of the Board, Gerry Cauley, president and CEO of NERC, and Mr. Hitti thanked Mr. Clermont for his work on the MRC and a truly exceptional year. In particular, Mr. Gorbet thanked Mr. Clermont for his role in shifting the agendas to include more strategic, forward-looking items, as well as bringing issues to the MRC before the Board took action.

Introduction and Chair’s Remarks
Mr. Hitti welcomed new MRC members and attendees, and acknowledged the attendance of the Board, Commissioner Marcelino Madrigal from the Mexican Energy Regulatory Commission, Michael Bardee and others from FERC, Murray Doehler from the Canadian Association of Members of Public Utility Tribunals, David Ortiz from the Department of Energy (DOE), and State Commissioner David Clark.

Mr. Hitti recognized the MRC responses to the January 12, 2016 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:

- Sylvain Clermont for Cam Matheson – Federal/Provincial
Minutes

The MRC approved, on a motion by Bill Gallagher and seconded by Sylvain Clermont, the draft minutes of its November 4, 2015 meeting in Atlanta and its January 12, 2016 conference call.

Election, NERC Board of Trustees

Paul Barber, chair of the Board of Trustees Nominating Committee (BOTNC), provided a report and recommendation for election of three Board members. The MRC unanimously approved the re-election of Robert Clarke and David Goulding and election of Kenneth DeFontes for three-year terms ending in 2019.

After the election, Ken Peterson, the incoming chair of the BOTNC, noted that the BOTNC will be soliciting volunteers from the MRC earlier this year in order to have adequate time to select a search firm. He noted that the first call would likely occur in late March or early April, with the expectation that a search firm would be selected by the May meetings.

DOE-NERC Coordination

David Ortiz noted that in January 2016, the Secretary of Energy announced up to 23 million dollars in funding for innovative and cross-cutting projects led by fourteen of the national labs. These projects are part of the grid modernization effort and follow up on 14 billion dollars in funding for Smart Grid and other developments. The first set of modernization projects included more than 100 partners, which included many NERC members. Mr. Ortiz thanked NERC and all members participating in those projects. Additional informational on the DOE’s grid modernization efforts can be found on its website.

Responses to the Board’s Request for Policy Input

Mr. Hitti acknowledged the MRC’s responses to Fred Gorbet’s January 12, 2016, letter requesting policy input on the 2017 business plan and budget development, ERO Enterprise strategic planning redesign, and cost effectiveness method and pilot proposal. The following comments on the policy input topics are not all inclusive, but provide the general tenor and scope of the discussion:

2017 Business Plan and Budget Development

Michael Walker, senior vice president and chief financial and administrative officer at NERC, provided an overview of the plan for developing the 2017 business plans and budgets, which will be informed by the strategic plan approved in November 2015. NERC and the Regional Entities have been working together to finalize a set of common assumptions. He noted that the policy input received was generally around clearer linkage with the strategic plan, efficiency, cost control, resource allocation, and impact on industry resources. Mr. Walker noted that the first draft will be posted on May 19, 2016 with informal opportunities for input in April with the trade associations and MRC business plan and budget input group.
• An MRC member noted that the MRC business plan and budget group should be re-established to provide input on the 2017 business plan and budget development.

• A Board member suggested that there should be clearer mapping of how NERC is allocating resources.

• An MRC member suggested considering a zero-based budget, as suggested in the policy input responses.

• An MRC member commended the increased transparency on business priorities and improvement of overall timeline.

• A Board member asked the MRC to think about whether the quarterly meetings are meeting their needs with respect to timing, transparency, and desired dialogue.

**ERO Enterprise Strategic Planning Redesign**

Mark Lauby, senior vice president and chief reliability officer at NERC, noted that there are currently three strategic planning documents: (1) ERO Enterprise Longer-term Strategic Planning Considerations; (2) Three-year ERO Enterprise Strategic Plan; and (3) ERO Enterprise and Corporate Metrics. The strategic planning documents incorporate information from various resources (i.e., RISC report, Reliability Leadership Summit, MRC policy input, ERO Enterprise Effectiveness Survey, annual Board strategic session). Mr. Lauby stated that the ERO Enterprise is striving to consolidate the documents and include fewer, but more outcome- and results-based, metrics. The ERO Enterprise will also be working to enhance linkages among the goals, deliverables, and metrics, as well as risk priorities identified in the RISC report and the longer-term strategic planning considerations. Mr. Lauby noted that the Reliability Leadership Summit has been scheduled earlier than last year to better align with the strategic planning process. He provided an overview of the schedule and highlighted several opportunities for industry input throughout the process.

• Bob Clarke, the new chair of the Corporate Governance and Human Resources Committee, noted his appreciation for the policy input on needing more clear, concise, and measurable metrics, which is one of main goals for the CGHRC this year.

**Cost Effectiveness Method and Pilot Proposal**

Howard Gugel, director of standards at NERC, provided an overview of the proposed cost effectiveness method and pilot proposal. Mr. Gugel noted that there are two key questions to be considered when thinking about cost: (1) what the cost versus the reliability benefit is to mitigate an identified risk; and (2) whether a particular standard is developed with the most cost effective solution. The proposed cost effectiveness approach looks at cost in orders of magnitude and includes two phases: (1) the SAR drafting phase for a high level analysis of the risk reduction to the BES being considered, as well as the potential costs of not addressing the reliability risk; and (2) the standard development phase for collecting per unit cost information on a voluntary basis from a representative sample of entities that would be affected by the standard. Mr. Gugel stated that NERC proposes to pilot this approach with Project 2015-10: TPL-001-4 Single Points of Failure since it can be looked at in both phases. Specifically, the SAR phase would request commenters to identify: (1) reliability risks to the BES from not addressing planned maintenance outages
of significant facilities that are more than the six-month threshold; (2) reliability risks to the BES if stability analysis for P0, P1, and P2 categories in TPL-001-4 is not performed; and (3) methods to reduce the identified BES risks achieved in a cost-effective manner. If a standard modification is needed to address the risks, the SDT would use the standard development phase to collect representative per unit costs for implementation.

Mr. Gugel thanked respondents for the policy input received and provided an overview of general themes in the policy input. He noted that there appears to be broad support for the concept, with some specific suggestions on how it could be implemented. For example, policy input suggested that cost effectiveness could be incorporated into existing processes, detailed cost information should be clearly identified, and the best time for evaluating cost could be prior to the SAR phase when a risk is identified. The policy input also reinforced that non-standard solutions should be considered. Several respondents encouraged NERC to consider lessons learned from the Cost Effective Analysis Process (CEAP) and NPCC program in this new approach. Mr. Gugel highlighted the following lessons learned from the aforementioned programs that were considered in the development of the proposed approach: (1) the more detail requested, the fewer responses; (2) data was more available on equipment than cost; (3) scope and cost estimates varied widely across participants; (4) the burden was placed on entities to provide details; (5) societal costs were not considered; (6) risk was not a factor for consideration; (7) there was no off-ramp from the standards process; (8) questions needed to be precise; and (9) no benefit was identified to compare against the cost.

- Many MRC members were very supportive of NERC’s efforts in this area, noting that it appears the approach is off to an appropriate start. Many also acknowledged that this would be an iterative process.
- MRC and Board members acknowledged that this will be a very difficult, but important, task.
- An MRC member suggested that there could be some linkages with the Compliance Guidance Policy currently being implemented.
- An MRC member offered two suggestions: (1) when asking for data from entities, precise instructions should help make results more comparable; and (2) ask entities for the total cost of compliance, cost for maintaining compliance, and cost for monitoring compliance.
- A Board member suggested that a review of existing standards, which would capture real costs, might help inform the process to get better cost data in terms of how costs are estimated going forward.
- An MRC member cautioned that there should be a process that allows development of a standard to stop if it is determined to not be justified from a cost-benefit perspective.
- An MRC member suggested that a general public program to advise regulators on costs would be helpful.
- An MRC member reminded NERC to keep in mind that small entities are involved.
- Mr. Ortiz noted that DOE has deployed a cost estimate tool which provides estimates of costs by customer and outage duration.
• An MRC member suggested thinking about an acceptable level of risk rather than the consequence of something occurring.

NERC Advocacy Role
Mr. Gorbet requested a discussion on the policy input received from the Edison Electric Institute (EEI) regarding NERC’s comments filed in response to FERC’s Notice of Proposed Rulemaking (NOPR) on standard small and large generator interconnection agreements. He stated that this is an important policy issue, but in this case, he believes that NERC was appropriately advocating for reliability. Mr. Gorbet noted that it would be helpful to the Board to have input on where the line is.

• An MRC member shared a concern that NERC may have implied a preferred solution to reliability, when the intent may have been to emphasize and advocate potential impact to reliability.

• Mr. Cauley stated that NERC’s intent is to advocate for reliability and not, in instances similar to the NOPR, to advocate for specific solutions. In this case, NERC’s comments were intended to indicate that the NOPR was consistent with NERC’s findings with respect to essential reliability services, but were not intended to indicate that the proposals in the NOPR are the only approach.

Additional Policy Discussion of Key Items from Board Committee Meetings
Attendees did not have any additional comments in response to the discussions from the Finance and Audit Committee or the Compliance Committee meetings. Attendees shared the following comments in response to the discussions at the Standards Oversight and Technology Committee and Corporate Governance and Human Resources Committee meetings.

Standards Oversight and Technology Committee
Brian Murphy, chair of the Standards Committee, provided an update on the standards metric discussed during the meeting that is being developed by the Standards Committee. He noted that the new approach for the metric is to grade standards based on quality and content, similar to how the Independent Expert Review Panel graded standards. The grading will be presented to stakeholders for comment, then included in the Reliability Standards Development Plan and incorporated into the enhanced periodic review process.

• A Board member suggested using a term other than “steady-state” when referring to standards, as suggested in policy input comments.

Corporate Governance and Human Resources Committee
• An MRC member requested more clarity and transparency on actions being taken as a result of any surveys, including the Board and Board Committee Effectiveness Surveys and the ERO Enterprise Effectiveness Survey.

Supply Chain Management Technical Conference
Marc Sachs, senior vice president and chief security officer at NERC, provided an overview of the supply chain management technical conference held by FERC on January 28, 2016. There were three panels on the following topics: (1) the need for a new or modified Reliability Standard; (2) the scope and
implementation of a new or modified standard; and (3) current supply chain risk management practices and collaborative efforts. He noted that it appeared FERC was leaning towards a mandatory standard but was open and receptive to comments during the conference. There was discussion on what a standard might look like and whether there were any potential negative consequences of developing a standard. Mr. Sachs also noted good discussion around the possibility of a task force.

Michael Bardee, Director, Office of Electric Reliability at FERC, added that there was discussion on the need for flexibility in a standard and a potential tiered approach. Mr. Bardee noted that the Commission will evaluate the input received and determine how to proceed, whether it be a standard of some type or another approach.

**BES Notification and Exception Process Update**

John Moura, director of reliability assessment and system analysis at NERC, described the maturation of the BES exception notification process and enhanced coordination across the ERO Enterprise and with stakeholders. He noted that the NERC Review Panel is the last step to review technical material, and that the NERC Review Panel uses a risk-based approach, considering facts and circumstances on a case by case basis. Mr. Moura added that NERC is working to identify better information sharing and create better transparency.

Mr. Moura reviewed the statistics included in the agenda package and noted that the posted case notes are being enhanced based on feedback received. He also noted that NERC is open to making changes to the NERC Rules of Procedure to ask entities to post additional details, but at this point, the details being shared are based on what is currently allowed by the NERC Rules of Procedure.

- An MRC member noted his appreciation that NERC will be revising the case notes to be more helpful.

**Clean Power Plan: NERC Assessments Status Update**

Tom Coleman, director of reliability assessments at NERC, provided an overview of NERC’s efforts to develop assessments on the Clean Power Plan. On January 27, 2016, NERC released a reliability considerations document for states and is currently conducting outreach and coordination with states. Mr. Coleman noted that NERC is developing a phase II assessment to provide resource adequacy analysis and serve as a framework for more localized and granular studies. He also noted that part of the phase II analysis will incorporate additional studies that have been conducted from third parties. Mr. Coleman reviewed the following scenarios that are being analyzed in the phase II assessment: (1) reference case which assumes there is no Clean Power Plan; (2) constrained interstate trading; (3) full intrastate and interstate trading; (4) high penetration of renewables; and (5) accelerated retirement of nuclear retirements. The phase II assessment is tentatively scheduled for release on March 31, 2016.

- A Board member asked about the effect of the Supreme Court ruling. Janet Sena, senior vice president and director of policy and external affairs at NERC, stated that from a reliability perspective, NERC does not see the decision to stay the rule altering plans to develop the assessment. She stated that NERC expects the decision to impact the September date for states from an implementation perspective.
• A Board member asked for clarification on the nuclear retirement scenario. Mr. Coleman stated that in that sensitivity analysis, the models include retirement of a greater number of nuclear units based on economic input assumptions.

• An MRC member raised concern about funding for assessment efforts that do not focus on all of North America; arguing that, for example, the costs related to the Clean Power Plan assessments are focused on the United States. Mr. Gorbet and Mr. Cauley both noted that NERC is an international organization and its studies are focused on reliability across North America, and that, in their view, NERC’s assessment work is relevant across the ERO Enterprise given the interconnected nature of the BPS.

• A Board member asked how NERC is dealing with natural gas in its scenario analysis. Mr. Coleman stated that NERC is not running a high natural gas scenario, but using a hybrid approach with current New York Mercantile Exchange (NYMEX) prices and Energy Information Administration (EIA) gas numbers from 2015.

Outreach and Follow-up of Reliability Assessment Reports
Mr. Moura provided an overview of how NERC develops outreach plans for its reliability assessment reports. The development of the plan starts before any analysis begins by discussing the target audience and the most effective communication platforms. Before releasing a report, NERC conducts outreach and incorporates much of the feedback received. NERC continues its outreach after the release of the report, reinforcing the key messages (i.e., support for new or revised standard, emerging reliability risk, reliability considerations, advocacy for reliability in policy setting, enhancements to planning or operations, etc.). Mr. Moura noted that as NERC continues to gather and analyze information, it is incorporated as appropriate into its assessments. For example, the ERS report recommendations were approved by the Board and NERC will continue to monitor them through special and long-term reliability assessments. He highlighted ongoing conversations with state regulators through the MRC, Regional Entities, and the National Association of Regulatory Utility Commissioners (NARUC) to ensure understanding of policy influence and implications of resource mix changes. Mr. Moura also highlighted examples of NERC’s outreach efforts on the Clean Power Plan, for which NERC is providing continuous outreach with states as state plans emerge, engaging with state regulators, coordinating with regional entities, distributing assessment and educational materials, and conducting annual assessments. Ms. Sena added that NERC takes a targeted approach of looking at what audiences to reach out to depending on the report. She also noted that organizations have been reaching out to NERC for a heads up on when the next report is being released.

• A Board member asked about provincial outreach being conducted. Ms. Sena noted that NERC communicates with CAMPUT and is working on improving that communication and outreach.

• An MRC member requested clarification on the change from seasonal to short-term assessments and whether there will be a change in the approval process. Mr. Moura stated that NERC would continue to collect seasonal data and conduct analyses, but would not produce formal seasonal assessment reports. Instead, NERC plans to transition to short-term assessments focused on specific reliability issues. NERC will continue to rely on the technical committees for review and feedback.
An MRC member noted his appreciation of NERC staff’s participation in meetings with the states to help understand reliability implications.

Compliance Guidance Implementation
Patti Metro, chair of the Compliance and Certification Committee (CCC) and member of the Compliance Guidance Team, noted that the Compliance Guidance Policy included two types of documents: (1) Implementation Guidance, which are examples developed by the industry and endorsed by the ERO Enterprise; and (2) CMEP Practice Guides, which are developed by the ERO Enterprise and provide direction to ERO Enterprise compliance monitoring and enforcement staff on approaches to carry out compliance and enforcement activities. Ms. Metro provided an update on the status of the Compliance Guidance Policy recommendations being completed by the CCC and the Standards Committee (SC). In the first quarter, a joint task force of the CCC and SC is reviewing existing documents to determine whether any of them should be considered for endorsement. Also in the first quarter, the CCC is developing a process to approve new organizations as pre-qualified in order to submit Implementation Guidance to the ERO Enterprise to consider for endorsement. Additionally, the SC is reviewing Section 11 of the Standard Processes Manual to determine what changes, if any, need to be made. After the first quarter deliverables are complete, the CCC and SC will coordinate to review measures and RSAWs, as recommended in the Compliance Guidance Policy.

Valerie Agnew, Senior Director of Reliability Assurance at NERC, provided an update on the status of the recommendations for the ERO Enterprise. She reminded attendees that CMEP Practice Guides are not going to be standards related, and are more related to practices. For example, the first CMEP Practice Guide being developed is on providing deference. She also noted that a one-stop shop has been created on the standards page as an excel spreadsheet with links to documents related to each standard. Ms. Agnew noted that NERC is currently developing the compliance guidance page to post Implementation Guidance and CMEP Practice Guides. Pre-qualified organizations can submit Implementation Guidance to complianceguidance@nerc.net.

- Mr. Hitti asked how the CMEP Practice Guide on deference is being developed. Ms. Agnew noted that NERC is working with the Regional Entities on this development.

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 6, 2016
- July 13, 2016
- October 4, 2016

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

There being no further business, the meeting terminated at 4:22 p.m., Eastern.

Submitted by,

Kristin Iwanechko
Secretary
Draft Minutes
Member Representatives Committee
Pre-Meeting Informational Session
Conference Call and Webinar
April 6, 2016 | Speaker Line Opens at 10:30 a.m. ET – 1-866-499-4719 | Conference ID: 67651794

Introduction and Chair’s Remarks
Chair Nabil Hitti, with Vice Chair John Twitty 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 6, 2016, at 11:03 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 4-5, 2016, in Chicago, Illinois. The meeting announcement, agenda, and list of attendees are attached as Exhibits A, B, and C, 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 Chicago 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 4-5, 2016, in Chicago identified in the slide presentation included in the informational session agenda package (Exhibit D). Mr. Hitti encouraged MRC members to review all agenda materials for the Board and Board Committee meetings, once posted and available on April 20, 2016, and attend as many of these meetings as possible, in advance of the MRC’s meeting on May 4, 2016.

Review of Proposed MRC Agenda Items for May 4
Ms. Iwanechko reviewed the preliminary MRC agenda items for the upcoming May 4, 2016, meeting in Chicago identified in the slide presentation included in the informational session agenda package (Exhibit D). 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 April 27 and May 4;
• Cost effectiveness approach and pilot;
• Reliability assessments and performance analysis:
  ▪ Clean Power Plan: Phase II assessment;
  ▪ Gas-electric interdependency special assessment;
  ▪ 2016 State of Reliability Report;
• Current FERC reliability activities:
  ▪ Essential reliability services;
  ▪ Security of the grid;
  ▪ Data sharing;
• Accountability Matrix; and
• Regulatory update.

**Policy Input Reminder**
Mr. Hitti announced that the Board’s request for policy input is scheduled to be released on April 6, 2016, and responses are due by Wednesday, April 27, 2016, to Ms. Iwanechko. NERC staff provided updates on the following topics included in the policy input letter:
  • Assessing reliability for an evolving bulk power system; and
  • ERO Enterprise strategic planning framework.

**Informational Items**
NERC staff provided updates on critical infrastructure protection standards and compliance, the primary frequency response notice of inquire, and the ERO Enterprise Effectiveness Survey.

**Proxy Reminder**
Proxy notifications for the May 4, 2016, meeting must be submitted in writing to Ms. Iwanechko.

**Meeting Adjourned**
There being no further business, the call was terminated at 12:19 p.m., Eastern.

Submitted by,
Kristin Iwanechko
Secretary
## Future Meetings

**Action**

Information

**Summary**
The following are the future meeting dates for 2016 and 2017. The dates for the 2016 pre-meeting and informational webinars are also included below.

### 2016 Dates

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<tr>
<td>July 13</td>
<td>Pre-Meeting and Informational Session</td>
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<tr>
<td>August 10-11</td>
<td>Halifax, Canada</td>
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<tr>
<td>October 4</td>
<td>Pre-Meeting and Informational Session</td>
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<tr>
<td>November 1-2</td>
<td>Atlanta, GA</td>
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### 2017 Dates

<table>
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<th>Date</th>
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<tr>
<td>February 8-9</td>
<td>San Diego, CA</td>
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<tr>
<td>May 10-11</td>
<td>TBD</td>
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<tr>
<td>August 9-10</td>
<td>Ottawa, Canada</td>
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<td>November 7-8</td>
<td>New Orleans, LA</td>
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Board of Trustees Nominating Committee Update

Action
Information

Background
On February 10, 2016, Chair Nabil Hitti invited Member Representatives Committee (MRC) members 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. Nabil Hitti – MRC Chair
2. John Twitty – MRC Vice Chair
3. Michelle D’Antuono – Large End-Use Electricity Customer
4. Tony Montoya – Federal/Provincial Utility

Ken Peterson, chair of the BOTNC, will provide a status report on the planned activities and schedule for the BOTNC.
Responses to the Board of Trustees’ Request for Policy Input

**Action**
Discussion

**Background**
The policy input letter is issued by the Chair of the NERC Board of Trustees (Board) four 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 one week before the meetings and is then revisited during a dedicated discussion time on the MRC’s agenda, in the presence of the Board.

**Summary**
On May 4, 2016, MRC can expect presentations with additional information on the two policy input items at the MRC meeting: (1) assessing reliability for an evolving bulk power system; and (2) the ERO Enterprise strategic plan framework. The MRC can expect to participate in further discussion of the responses received to the policy input request that was distributed on April 6, 2016, 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, 2016. Additional background information on each of the policy input items are included in the agenda package for the webinar.

Deadline for submitting policy input responses is April 27, 2016, and should be sent to Kristin.Iwanechko@nerc.net.

**Attachment**
April 6, 2016, Board’s Letter Requesting Policy Input
April 6, 2016

Mr. Nabil Hitti, Chair
NERC Member Representatives Committee

Dear Nabil:

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 4-5, 2016, meetings in Chicago, IL. Additional background information is included in the April 6, 2016 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: Assessing Reliability for an Evolving Bulk Power System**

Since the late 1960s, NERC’s long-term reliability assessments have been a source of credible, independent information on the reliability of the bulk power system (BPS) over a 10-year horizon. Currently, market forces and regulatory actions are driving unprecedented changes in the way electricity is produced and delivered. The changing resource mix, increases in distributed generation and load management require a re-evaluation and enhancement of reliability assessment approaches and tools in order to provide the insights needed on the reliability of the projected future BPS. Methods of analysis, measurement processes, reliability criteria, and analytical tools should all be advanced to provide better and timely assessments of the reliability of the current and future BPS, as well as to identify risks to reliability and how they might best be managed.

In order to meet the goals and objectives for independent reliability assessments, they should extend beyond supply adequacy. In addition to current capabilities, NERC, working with the Regional Entities and the technical stakeholder committees, is planning to perform several analyses and assessments to begin assessing the risks from transformation, as described in the April 6, 2016 MRC Informational Session agenda package (see Agenda Item 3a).

The Board requests MRC input on the following questions for this item:

1. Do the proposed enhancements to reliability assessments reflect an appropriate approach for assessing reliability given the increased complexity from the changes in resource mix and electricity delivery?
2. Are there additional emerging risks that should be considered for enhancing reliability assessments?
Item 2: ERO Enterprise Strategic Planning Framework

As noted during the April 6, 2016 MRC Informational Session, MRC input over recent years has called for more alignment among the ERO Enterprise strategic planning documents, as well as clear linkages to the risks identified in the Reliability Issues Steering Committee’s (RISC) annual ERO Reliability Risk Priorities Report and with the annual business plan and budget.

A draft redesigned strategic plan framework (Attachment A) has been created to integrate these elements into one document that better reflects the input from identified risk priorities and long-term strategic planning considerations and also provides a clearer linkage between ERO Enterprise strategic goals and the metrics used to evaluate progress against those goals. The draft framework was developed by NERC staff, with input from Regional Entity leadership and the RISC. To provide a better picture of the approach of the proposed framework, the draft has been populated with the content from the current strategic planning documents (2016–2019 cycle). Once the framework is finalized, the content will be adjusted for the 2017–2020 strategic planning cycle and will include reduced and refined metrics that are outcome-based and are more clearly linked to the strategic goals. The MRC will have opportunities to provide input on the content for the overall 2017–2020 strategic plan, both before and after the content is developed.

The Board requests MRC input on the proposed strategic plan framework document and whether it conveys a clearer, more streamlined view of the ERO Enterprise’s strategic planning approach, including providing clear linkages among the ERO Enterprise’s goals, metrics, longer-term strategic planning considerations, and risk priorities.

As a reminder, the full agenda packages for the Board, Board Committees and MRC meetings will be available on April 20, 2016. I encourage the MRC to review the agenda materials for the May 2016 Board and MRC meetings, once available, 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 27, 2016, for the Board to review in advance of the meetings scheduled for Chicago.

Sincerely,

Fred W. Gorbet, Chair
NERC Board of Trustees

cc: NERC Board of Trustees
    Member Representatives Committee
Draft Electric Reliability Organization Enterprise Strategic Plan and Framework
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Preface

The North American Electric Reliability Corporation (NERC) is a not-for-profit international regulatory authority whose mission is to assure the reliability of the bulk power system (BPS) in North America. NERC develops and enforces Reliability Standards; annually assesses seasonal and long-term reliability; monitors the BPS through system awareness; and educates, trains, and certifies industry personnel. NERC’s area of responsibility spans the continental United States, Canada, and the northern portion of Baja California, Mexico. NERC is the electric reliability organization (ERO) for North America, subject to oversight by the Federal Energy Regulatory Commission (FERC) and governmental authorities in Canada. NERC’s jurisdiction includes users, owners, and operators of the BPS, which serves more than 334 million people.

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

The highlighted areas denote overlap as some load-serving entities participate in one Region while associated transmission owners/operators participate in another.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>FRCC</td>
<td>Florida Reliability Coordinating Council</td>
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<tr>
<td>MRO</td>
<td>Midwest Reliability Organization</td>
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<td>NPCC</td>
<td>Northeast Power Coordinating Council</td>
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<td>RF</td>
<td>ReliabilityFirst</td>
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<tr>
<td>SERC</td>
<td>SERC Reliability Corporation</td>
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<td>SPP RE</td>
<td>Southwest Power Pool Regional Entity</td>
</tr>
<tr>
<td>Texas RE</td>
<td>Texas Reliability Entity</td>
</tr>
<tr>
<td>WECC</td>
<td>Western Electricity Coordinating Council</td>
</tr>
</tbody>
</table>
Introduction

This strategic plan and framework summarizes the ERO Enterprise’s mission, vision, values, goals, and strategic planning process, direction, and priorities for 2016 and beyond.

The annual strategic planning process is informed by (1) NERC’s State of Reliability Report; (2) the Reliability Issues Steering Committee’s (RISC’s) ERO Reliability Risk Priorities Report and Supplemental Technical Summary, which includes identified risk profiles; and (3) input from the NERC Board of Trustees and Regional Entity Boards. These inputs are used by ERO Enterprise leadership to:

- **Update ERO Enterprise Longer-term Strategic Planning Considerations** – The ERO Enterprise makes any necessary adjustments to its longer-term strategic planning considerations, which takes into consideration Bulk Electric System (BES) reliability issues over a 5 to 15-year planning horizon.

- **Update the Three-year ERO Enterprise Strategic Goals** – The ERO Enterprise makes any necessary adjustments to its strategic goals for the next three years.

- **Develop Annual ERO Enterprise Metrics** – The ERO Enterprise develops annual metrics to measure the ERO Enterprise’s progress in attaining the strategic goals.

- **Develop Annual Business Plans and Budgets** – Working collaboratively, NERC and each of the Regional Entities develop annual business plans and budgets (BP& Bs) that reflect the resources necessary to support achievement of the goals set forth in the strategic plan.

This document organizes and provides additional information regarding the items above in three sections as follows:

- **Mission, Vision, and Values** – Provides the ERO Enterprise’s mission and vision, and an overview of the strategic goals to carry out the mission. This section also details the ERO Enterprise’s core values and principles, and identifies four pillars of success.

- **Three-year Strategic Plan Goals** – Provides the description and contributing activities for each strategic goal on the three-year horizon, as well as the associated metrics. Additionally, each goal also lists the associated risk profiles from the ERO Reliability Risk Priorities Report: Supplemental Technical Summary, as well as any longer-term strategic planning considerations that helped to inform the goal.2

- **Appendices** – Four separate appendices are included that provide additional supporting detail regarding the metrics (Appendix 1), longer-term strategic planning considerations (Appendix 2), risk profiles (Appendix 3), as well as the BP&B development, review, and approval process (Appendix 4).

---

1 The ERO Enterprise is comprised of NERC and the eight Regional Entities, which collectively bring together their leadership, experience, judgment, skills, and supporting technologies to fulfill the EROs’ statutory obligations to assure the reliability of the North American Bulk Electric System (BES).

2 Only those goals focused on technical study, analysis, and mitigation of emerging and projected reliability risks are aligned with the risk profiles and longer-term strategic planning considerations.
**Mission, Vision, and Values**

**Mission**
To assure the reliable operation of the North American Bulk Electric System.

**Vision**
To be the trusted leadership that assures the reliable operation of the North American BES by promoting effective collaboration, cooperation, and communication around important risks to reliability; implementing relevant standards; and using expertise from the industry to produce outcomes and manage risks to reliability in a cost-effective manner.

**2016-2019 Strategic Goals**
The ERO Enterprise has five strategic goals to help it to successfully carry out its mission.

- **Goal 1:** Timely and Risk Responsive Reliability Standards
- **Goal 2:** Objective and Risk-informed Compliance Monitoring, Enforcement, and Organization Certification and Registration
- **Goal 3:** Identification and Mitigation of Significant Reliability Risks
- **Goal 4:** Identification and Assessment of Emerging Risks
- **Goal 5:** Effective, Efficient, and Collaborative ERO Enterprise

**Core Values and Principles**
The following core values and principles serve as guidelines for the conduct and behavior of all involved in the ERO Enterprise.

**Accountability and Independence**
- Be accountable for the public responsibilities delegated to it (a public trust obligation).
- Be impartial, independent of special interests, and impervious to improper influence.
- Balance its own independent regulatory judgment with the need to involve those with expert knowledge and experience in BES reliability matters.

**Responsiveness**
Act in a timely manner on the basis of unfolding events, emerging reliability risks, and the needs of industry and other stakeholders.

**Fairness and Inclusiveness**
- Be open and transparent.
- Provide access for clear communication with stakeholders.
- Ensure the legitimate interests of all parties, including costs imposed on registered entities, are duly considered and balanced in the development of policies and reliability standards, and in its programs and operations.
**Adaption and Innovation**

- Continuously assess and prioritize its goals.
- Embrace change and encourage new ideas that contribute to effective action.
- Recognize the complex relationships and potential tensions between reliability objectives and business imperatives (including cost control).
- Be nimble and artful in development of tools and dissemination of lessons learned and other information to respond to unfamiliar and emerging challenges.

**Excellence and Efficiency**

- Promote and rely upon the active participation of the best technical leaders from industry.
- Strive for excellence and efficiency in all aspects of Enterprise activities.
- Make informed decisions regarding efficient use of its resources and resources shared by industry, with due consideration of cost.

**Integrity**

Maintain the highest levels of professional and ethical conduct while being objective and maintaining confidentiality.

**Four Pillars of Success**

In order to succeed, the ERO Enterprise will emphasize:

- **Reliability** – Address events and identifiable risks, thereby ensuring the reliability of the BES through proper mitigation and remediation.
- **Assurance** – Provide assurance to the public, industry, and governments for the reliable performance of the BES.
- **Learning** – Promote learning and continuous improvement of operations and adapt to lessons learned for BES reliability.
- **Risk-Based Approach** – Focus attention, resources, and actions on issues most important to BES reliability.
Goal 1: Timely and Risk Responsive Reliability Standards

Goal Description
Reliability Standards establish threshold requirements for assuring the BES is planned, operated, and maintained to minimize risks of cascading failures, avoid damage to major equipment, or limit interruptions of bulk electric supply. Reliability Standards are clear, timely, responsive to reliability risks and cost-effective.

Contributing Activities
- Conduct periodic reviews and assessment of whether the Reliability Standard is properly structured for emerging risks.
- Assess Reliability Standards compared to the BES risk profile; address the most important unmitigated risks, including applicable high-impact, low-frequency risks.
- Develop and implement ERO Enterprise feedback loops to identify and address gaps or ambiguities in Reliability Standards, including the evaluation of significant BES events (including all category 3 and above).
- Develop and implement procedures for assessing the cost impact of Reliability Standards.

Metrics and Measures of Success
Metric 4: Program Execution Effectiveness
- Sub-metric A: Reliability Standards
- Sub-metric B: Reliability Standards Guidance and Training or Outreach

Associated Risk Profiles
N/A

Associated Longer-term Strategic Planning Considerations
N/A
Goal 2: Objective and Risk-informed Compliance Monitoring, Enforcement, and Organization Certification and Registration

Goal Description
The ERO Enterprise is a strong enforcement authority that is independent, without conflict of interest, objective, and fair, and promotes a culture of reliability excellence through risk-informed compliance monitoring, enforcement, certification, and registration.

Contributing Activities
- Consistently register and deregister entities based on risk to the BES and the BES definition.
- Evaluate the certification program for effectiveness and implement consistently across the ERO Enterprise.
- Develop Compliance Oversight Plans for registered entities that address the relevant risks.
- Focus Compliance Monitoring and Enforcement activities on the most significant risks to the BES.
- Process non-compliance using the appropriate method, considering the risk to the BES.
- Implement Compliance Monitoring and Enforcement consistently, timely, and transparently to industry.

Metrics and Measures of Success
- Metric 3: Risk Mitigation Effectiveness
  - 3.2 Extreme Physical Events
  - 3.3 Cybersecurity Preparedness
- Metric 4: Program Execution Effectiveness
  - Sub-metric C: Registration Program
  - Sub-metric D: Risk-based Compliance Monitoring and Enforcement

Associated Risk Profiles
N/A

Associated Longer-term Strategic Planning Considerations:
N/A
Goal 3. Identification and Mitigation of Significant Current Risks to Reliability

Goal Description
The ERO Enterprise identifies the most significant risks to reliability, provides assurance for mitigating reliability risks, and promotes a culture of reliability excellence. The ERO Enterprise supports the Electricity Information Sharing and Analysis Center (E-ISAC), the Cybersecurity Risk Information Sharing Program (CRISP), reliability assessments, situational awareness, and physical security and cybersecurity preparedness.

Contributing Activities

- Expand reliability data-grounded analyses and sustain independent, technical assessments of proposed regulatory rules or proposed statutes (state, provincial, or federal) as well as significant market rules to determine potential impacts to reliability.
- Maintain a BES risk profile to prioritize and rank reliability risks.
- Develop project plans and business case assessments for high-priority risks including cost and practicality of assessment; implement or facilitate initiatives to address high-priority risks.
- Integrate risk data sources, such as event analysis, Transmission Availability Data System, Generating Availability Data System, and relay misoperations as well as other occurrences (e.g., AC equipment failures) to provide lessons learned, recommendations, identified risks, and their mitigation to promote reliability.
- Analyze system performance and significant events (e.g., sampling of Category 2 events in addition to assessing all Category 3 and above) to identify gaps in Reliability Standards, compliance effectiveness, registration, and risk controls effectiveness, as well as the development of lessons learned or other information sharing activities that promote BES reliability.
- Enhance communications among the E-ISAC, the Telecommunications Information Sharing and Analysis Center, and Natural Gas Information Sharing and Analysis Center.
- Expand the use, availability, and value of physical security and cybersecurity threat and vulnerability information sharing, analytics, and analysis.

Metrics and Measures of Success

- Metric 1: Reliability Results
- Metric 2: Assurance Effectiveness
- Metric 3: Risk Mitigation Effectiveness
  - 3.1 Changing Resource Mix
  - 3.3 Cybersecurity Preparedness
  - 3.4 Protection System Misoperations
  - 3.5 Resource Availability Due to Extreme Conditions
  - 3.6 Model Building
  - 3.7 Equipment Performance
• Metric 4: Program Execution Effectiveness
  ▪ Sub-metric G: GridEx III Recommendations and Lessons Learned

**Associated Risk Profiles**

• Risk Profile #2D – Generator Unavailability
• Risk Profile #3A – Inadequate Maintenance/Asset Management
• Risk Profile #3B – Protection System and Single Points of Failure
• Risk Profile #3C – Loss of EMS- Situational Awareness
• Risk Profile #4A, B, & C – Cyber Attacks and Physical Events
• Risk Profile #5 – Inadequate Human Performance
• Risk Profile #6 – Inadequate Event Response or Recovery

**Associated Longer-term Strategic Planning Considerations**

• Recovery and Restoration
Goal 4. Identification and Assessment of Emerging Risks to Reliability

Goal Description
The ERO Enterprise identifies, evaluates, studies and independently assesses emerging risks to reliability.

Contributing Activities
- Develop sufficiency/adequacy guidelines for essential reliability services (ERS) including emerging risks. Expand the considerations to encompass the comprehensive range of reliability attributes under more diverse resource mix and load behavior, such as ramping, fast regulation, reserve services, and interdependent sector performance.
- Enhance reliability assessments to reflect changing resource mix behavior, including distributed energy resources and ERS, with probabilistic approaches, considering the variable and energy-limited nature of the resource shifts.
- Evaluate the impacts on recovery and restoration plans including consideration of distributed resources.

Metrics and Measures of Success
- Metric 3: Risk Mitigation Effectiveness
  - 3.1. Changing Resource Mix
  - 3.3 Cybersecurity Preparedness
  - 3.4 Protection System Misoperations
  - 3.5 Resource Availability Due to Extreme Conditions
  - 3.7 Equipment Performance

Associated Risk Profiles
- Risk Profile #1 – Regulatory Uncertainty
- Risk Profile #2A – Changing Resource Mix
- Risk Profile #2B – Inadequate Planning Coordination
- Risk Profile #2C – Ineffective Resource Planning

Associated Longer-term Strategic Planning Considerations
- Resource and Planning Adequacy
- Situational Awareness and System Control (with the Integration of New Technologies)
Goal 5: Effective, Efficient, and Collaborative ERO Enterprise

Goal Description
The ERO Enterprise improves transparency, consistency, quality, efficiencies, cost-effectiveness, and timeliness of results and operates as a collaborative enterprise.

Contributing Activities
- Articulate a shared vision of reliability excellence and support and inspire stakeholders continent-wide, including in international jurisdictions, in working to attain that vision.
- Engage the support and expertise of stakeholders in prioritizing and resourcing reliability initiatives.
- Communicate expectations clearly and foster collaboration to deliver important results in advancing system reliability.
- Acquire, engage, and retain highly qualified talent with requisite technical expertise to execute the ERO Enterprise’s statutory functions.
- Understand and manage ERO Enterprise internal risks.
- Processes and procedures are consistent, effective, and efficient.
- Clearly delineate ERO Enterprise roles and responsibilities using the ERO Enterprise Operating Model action items to mature the collaborative processes.

Metrics and Measures of Success
- Metric 4: Program Execution Effectiveness
  - Sub-metric E: ERO Enterprise Operating Model
  - Sub-metric F: ERO Enterprise Effectiveness Survey

Associated Risk Profiles
N/A

Associated Longer-term Strategic Planning Considerations
N/A
## Appendix 1: 2016 Metrics and Measures of Success

The 2016 ERO Enterprise and Corporate Metrics feature four main metrics focused on reliability results, assurance effectiveness, risk mitigation effectiveness, and program execution. These metrics are used to measure success and effectiveness for what will be accomplished in 2016 toward achieving the three-year goals set forth in the strategic plan.

[NOTE: The goal for 2017 is to have a reduced and outcome-based set of metrics.]

### ERO Enterprise Metric 1: Reliability Results

<table>
<thead>
<tr>
<th>Measure of success</th>
<th>Outcomes/Deliverables</th>
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</table>
| The frequency and severity of Bulk Electric System (BES) events, excluding weather, flood, or earthquake. The target is fewer, less severe events during 2016. | - No Category 4 or 5 events.  
- The slope of the cumulative trend line in the composite daily “event Severity Risk Index” (eSRI) for Category 1–3 events remains flat or negative. |

### ERO Enterprise Metric 2: Assurance Effectiveness

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<th>Measure of success</th>
<th>Outcomes/Deliverables</th>
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| Assess all Category 3 and above events and reach zero gaps in Reliability Standards and compliance monitoring by 2017. | - Following any Category 3 or above event, a documented gap analysis that reviews Reliability Standards and compliance monitoring is completed and recommendations identified within 90 days of both the event analysis(es) and compliance self-assessment(s).  
- If there are gaps identified in existing Reliability Standards or compliance monitoring, an alternative acceptable target is that gaps are closed within one year of the gap analysis report being released, two years if a technical study is needed first.  
- Expand the existing gap analysis metric by sampling five (5) additional events that occurred between 2014 and 2016, and develop a program which indicates potential gaps in NERC’s Reliability Standards and compliance monitoring activities. |

### ERO Enterprise Metric 3: Risk Mitigation Effectiveness

<table>
<thead>
<tr>
<th>Measure of success</th>
<th>Outcomes/Deliverables</th>
</tr>
</thead>
</table>
| 1. Changing Resource Mix | - Publish a reliability guidance document for state regulators to assist them in their state and regional plans to address the Clean Power Plan rule.  
- Incorporate an evaluation of the potential effects on reliability from a single fuel dependency (natural gas) in the Long-Term Reliability Assessment (LTRA).  
- Launch a distributed energy resources (DER) task force under the Planning Committee to identify reliability considerations when accommodating large amounts of DER. |
### 1. Power Flow and Dynamic Base Case
- Develop power flow and dynamic base case for the study of high penetration of Variable Energy Resources (VER).
- Develop a whitepaper on planning and operating expectations for adequate amounts of essential reliability services (ERS) to maintain reliability. The whitepaper should inform the development of a “sufficiency guideline,” to be developed in 2017.
- Conduct a short-term reliability assessment that addresses an emerging issue and rapid transitions of resources focused on high-risk areas (examples include persisting drought conditions, potential impacts of retirements of vulnerable nuclear generation, operational risk scenarios).
- Develop an outreach and coordination plan, and implement the plan with states using the NERC assessments as a foundation to support policy decisions. This outreach and coordination includes webinars, state visits, and state energy-related forums.
- Complete a report on strategies and methods to maintain reliability while accommodating large amounts of DER.
- Develop and complete guidebook for probabilistic assessment of resource adequacy.

### 2. Extreme Physical Events
- In collaboration with the Regional Entities, develop a compliance monitoring plan for the remaining CIP-014 requirements prior to their initial enforcement period.
- Conduct oversight of the Regional Entities’ implementation of the CIP-014 compliance monitoring plan.
- Continue to conduct industry and stakeholder training or outreach for CIP-014, as necessary.
- Continue to conduct industry and stakeholder training or outreach for geomagnetic disturbance (GMD) standards as necessary.
- Evaluate potential noncompliance of CIP-014 to inform the need for additional training or outreach.
- Evaluate potential noncompliance of GMD standards to inform the need for additional training or outreach.

### 3. Cybersecurity Preparedness
- Continue to conduct industry and stakeholder training or outreach for CIP Version 5 (CIP V5) as necessary to address emerging issues identified by industry during implementation, if any.
- Implement two ESCC recommendations to the E-ISAC in accordance with guidance received from the NERC Board.
  - Develop a How to Guide to encourage new members to engage with the E-ISAC.
  - Review products, services, programs, and tools currently offered by the E-ISAC to identify member segments, needs and expectations.
  - Develop an alternative method for machine-to-machine automation for information gathering beyond CRISP and offer participation to industry members on a pilot basis.
- Evaluate potential noncompliance of CIP V5 to inform the need for additional training or outreach.
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<tr>
<td>4.</td>
<td>Protection System Misoperations</td>
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<td>• Build and deploy an IT process for registered entity relay misoperations submissions that enables NERC and the Regional Entities to collaboratively collect, analyze, and understand those factors that are contributing to relay misoperations.</td>
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<tr>
<td></td>
<td>• NERC and the Regional Entities develop and implement collaborative strategies to improve relay misoperation rates, specifically targeting the top three contributing factors to relay misoperations.</td>
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<td>• Reduce the number of relay misoperations of the top three contributing factors by a statistically significant amount in 2016, as compared to the base-line in the 2014 Relay Misoperations report and the 2014 State of Reliability report.</td>
</tr>
<tr>
<td>5.</td>
<td>Resource Availability Due to Extreme Conditions</td>
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<td>• Perform analysis, including the use of GADS, TADS, and DADs data, to evaluate BES performance during 2012 through Q1 of 2016 extreme weather events and identify any trends or recommendations as appropriate.</td>
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<tr>
<td></td>
<td>• Continue to monitor for severe weather performance of the BES during 2016 and use appropriate intervention strategies, e.g., lessons learned, event analysis report recommendations, webinars, training or outreach.</td>
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<td></td>
<td>• Produce an annual extreme weather preparedness webinar and formal feedback to support short-term and special reliability assessments.</td>
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<td>6.</td>
<td>Model Building</td>
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<td>• Complete the transition of all model building designees and ensure all criteria of the model building designees are being performed (or a plan is in place to address criteria satisfactory to NERC).</td>
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<td>• Develop a Reliability Guideline accepted by the Planning Committee for power plant model verification using Phasor Measurement Unit (PMU) data.</td>
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<td></td>
<td>• Develop Phase 2 Case Quality Metrics, test on latest heavy summer power flow models, and provide results and recommendations to NERC’s model building designees.</td>
</tr>
</tbody>
</table>
Perform industry outreach and coordination to reinforce power plant and system model verification using PMU data; i.e. webinars, industry panels, NERC subcommittee outreach, etc.

Establish and implement a process for modeling notifications to inform industry about errors in models and enhancements.

7. Equipment Performance

Verify the top three most impactful failures by substation equipment (see NERC’s 2014 AC Substation Equipment Failure report).

Develop a strategy and plan that includes an achievable goal for reduction of the top three most impactful failures by substation equipment types.

Establish success measures and begin implementation of plans for the top three most impactful failures by substation equipment types.

**ERO Enterprise Metric 4: Program Execution Effectiveness**

<table>
<thead>
<tr>
<th>Sub-metric</th>
<th>Measure of success</th>
<th>Outcomes/Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-metric A</strong></td>
<td>Reliability Standards address risk and projects consider cost effectiveness/impact</td>
<td>Initiate at least two enhanced periodic reviews in 2016, ensuring that the projects are structured sufficiently to address emerging risks.</td>
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<td>Develop a risk-based input mechanism to prioritize enhanced periodic reviews.</td>
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<tr>
<td><strong>Sub-metric B</strong></td>
<td>Guidance and training or outreach is provided to industry to support the smooth implementation of Reliability Standards</td>
<td>ERO Enterprise Compliance Monitoring and Enforcement Program (CMEP) staff is trained or provided outreach for every Reliability Standard approved by FERC in 2016 within 90 days of the date of the order.</td>
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<tr>
<td></td>
<td></td>
<td>Guidance protocols are implemented.</td>
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<tr>
<td><strong>Sub-metric C</strong></td>
<td>The registration program is evaluated for structure and consistency.</td>
<td>NERC-led panel is in place to conduct registration reviews according to established risk-based criteria.</td>
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<td>Evaluate the need for an ERO Enterprise staff training program to support consistent execution of the recommended registration program.</td>
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<td>If training is needed, begin program design.</td>
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</tbody>
</table>
**Sub-metric D**
Risk-based CMEP implementation is complete and is being measured for effectiveness

- Develop a plan in collaboration with Regional Entities for completion of initial Inherent Risk Assessments (IRAs) for all registered entities.
- In collaboration with the Regional Entities, modify the procedures for the ERO Enterprise’s implementation of IRAs and how this is translated into a compliance oversight plan (COP).
- In collaboration with the Regional Entities, modify the procedures for the ERO Enterprise’s integration of Internal Control Evaluations (ICEs) and how it factors into COPs.
- Review of compliance exceptions and Find, Fix, Track and Reports (FFTs) conducted; 95% of compliance exceptions and FFTs sampled are appropriately categorized.
- 70% of all non-compliance is self-identified for threshold and .75% of all non-compliance is self-identified for target.
- Mitigation completion rates are as follows:

<table>
<thead>
<tr>
<th>Noncompliance discovery year</th>
<th>Threshold</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 and older</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2014</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>2015</td>
<td>70%</td>
<td>75%</td>
</tr>
</tbody>
</table>

- Regional Entities will document IRAs of all Reliability Coordinators (RCs), Balancing Authorities (Bas), and Transmission Operators (TOPs) by the end of 2016 and NERC will perform oversight.
- Compliance monitoring activities performed during 2016 cover the most significant risks to the BES.
- In collaboration with the Regional Entities, begin implementation of the ICE procedures as revised in threshold.
- Minimal risk noncompliance continues to be evaluated to look for trends or other relevant information and results are disseminated to Regional Entities and registered entities as appropriate.
- Review of compliance exceptions and FFTs conducted; 100% of compliance exceptions and FFTs sampled are appropriately categorized.
- 100% of Notices of Penalty approved by FERC.

**Sub-metric E**
The transition laid out in the operating model continues to be achieved regarding more predictable, consistent, and timely results and methods across the enterprise, as well as ensuring efficiencies and minimizing duplication and any activities not affecting reliability outcomes

- In collaboration with the Regional Entities, incorporate sub-metric D modifications for IRA and ICE into the NERC Compliance Monitoring Oversight Plan.
- In collaboration with the Regional Entities, incorporate sub-metric C registration program modifications into the NERC Organization Registration Oversight Plan.
- Implement the oversight plans for compliance monitoring, registration, and enforcement programs.
- In collaboration with the Regional Entities, develop documented oversight plans for event analysis, situational awareness, and
<table>
<thead>
<tr>
<th>Sub-metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F</strong></td>
<td>The ERO Enterprise stakeholder survey measures stakeholders’ perceptions of the ERO Enterprise’s execution of its work in an effective and consistent manner to achieve operational excellence and to reduce the risk to the reliable operations of the BES.</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td>Recommendations and lessons learned from GridEx III are developed.</td>
</tr>
</tbody>
</table>

- Performance analysis in accordance with the NERC Oversight Program Framework.
- Complete all ERO Enterprise tool projects in accordance with ERO EMG approved schedule, without material project overrun or setback. This includes user management registration and Enterprise Reporting Phase 3.
- In collaboration with the Regional Entities, review the organization certification program regarding its effectiveness in determining an entity’s ability to become certified and then operational. Begin to incorporate changes to the program, if applicable, based on the outcomes of the review.

- Final results report and action plans for identified focus areas developed.
- Report on lessons learned and recommendations for improvement from GridEx III developed.
- Integrate lessons learned into the NERC Crisis Action Plan and into the E-ISAC standard operating procedures. Pass lessons learned to the ESCC for use in its playbook, and at least one substantive recommendation will be incorporated into the ESCC playbook.
Appendix 2: Longer-term Strategic Planning Considerations

A recurring theme in the 5 to 15 year horizon is that the electric power industry is entering a period of profound change that could affect the reliable operation of the Bulk Electric System (BES). The ERO Enterprise must anticipate these changes, identify and address risks to reliability, as well as mitigate them during this transformation. This appendix includes these longer-term considerations, which are used as input to the ERO Enterprise’s development of its three-year strategic planning activities and the annual business plan and budget, once the concepts have been sufficiently vetted.

**Significant Emerging Trends**

The resource mix comprising on-peak capacity has recently shifted to be predominately gas-fired: now 40 percent, compared to 28 percent just five years ago. This trend is expected to continue, as retiring coal, petroleum, nuclear, and other conventional generation is largely being replaced by gas-fired capacity and variable energy resources (VERs), both on the BES and integrated into the distribution system. The fundamental transformation of the resource mix is being driven by fuel and resource economics, environmental regulations, and legislation as well as state and provincial incentives and mandates for adding renewable VERs (e.g., wind and solar).

Sustaining a reliable interconnected BES is critical during this period of innovation and integration of new resources and technologies onto the grid. These technologies include integration both on the bulk power and distribution systems of large amounts of VERs, increased use of gas-fired generation, high voltage and distributed network system technologies, and end-use applications (such as plug-in vehicles and distributed energy resources). Additionally, the grid will face a host of cross-jurisdictional challenges, such as gas-electric and telecommunications-electric interdependencies and the addition of distribution-centric resources. As energy resources increasingly transition to the distribution system and distributed networks emerge, their reliability characteristics and contributions to grid reliability may not be the same as those resources they replace.

For example, essential reliability services (ERS) as well as the provision of a sufficient amount of control (ability to observe and dispatch) of resources will need to be addressed for the continued reliable operation of the BES. ERS and sufficient operational control is needed not only to balance resources with demand, but also to provide support to recover from severe events and restore the BES enabling reliable operation. Further, alongside traditional analysis and assessment approaches, addressing cyber and physical security will play an increasingly prominent role in the design, construction, and deployment of new resources and technologies. Resource transformation provides opportunities for the industry to design a more secure system, along with the construction of more responsive resources that can deliver flexibility that ensures sufficient balance of ERS and overall resource control. Further, detailed assessments are required of energy-limited VERs, such as wind and solar resources to ensure that sufficient resources are available to maintain the reliable operation of the BES.

Similarly, the application of energy storage and Demand-Side Management (DSM) technologies has the potential to offer more options for balancing resources to meet demand with greater efficiency. New technologies (e.g., smart grid devices and applications, phasor measurement units (PMUs), remedial action schemes, new forecasting capabilities, greater system awareness, etc.) can also advance the industry’s ability to dynamically control grid facilities and improve coordination among system operators, grid resources, and consumers. However, these considerations must be part of the design, construction integration, and interconnection of these new technologies. At the same time, the industry is facing historically flat load and revenue growth with low prices for production driven by a strong domestic supply of natural gas and, in some cases, by renewable energy supply standards or subsidies. These influences are resulting in low capacity prices as well as strained opportunities for earnings growth and capital investment in many regions. Projected future capacity margins in multiple regions have begun to show these effects, declining below targeted margins as documented in recent NERC and regional reliability assessments.
While resource mix and technologies are rapidly changing, customer and regulator expectations are also changing. Industry is expected to minimize customer disruptions and harms resulting from severe conditions, such as storms, extreme heat and cold, drought, geomagnetic disturbances, and physical and cyber security attacks. An increased focus on the industry’s ability to recover and restore reliable operation of the BES is referenced frequently as one approach to optimize preparations for extreme conditions and events for which prevention alone would be prohibitively expensive. There is an increasing awareness of the need to understand, analyze, and prepare for risks from extreme conditions and balance reliability investments between normal design-based conditions and more extreme events.

With the changing landscape outlined above, the current approach to reliability may not adequately address risks associated with severe conditions, such as the extreme cold seen during the 2014 winter “polar vortex.” Coordinated efforts between electric and gas sectors are needed in order to meet future infrastructure needs to supply and transport fuel. Therefore, the risks associated with loss of fuel diversity must be understood, and preparations made to quickly recover and restore after unexpected extreme temperatures.

**Considerations for Assuring Reliability on a Longer-term Horizon**

**Reliability Assessment: Resource and Planning Adequacy**

Historically, reliability assessments have focused on measuring reserve margins comparing forecasted electricity demand based on normalized weather conditions to projected available resources, with weight given to the projected resources based on their level availability certainty. A target capacity reserve margin is determined to address uncertainties, and assessment results are compared to these targets. Increasing the sophistication of NERC’s reliability assessments will include measurement of ERS and system security. As part of its assessment of long-term reliability with the existing Reserve Margin metrics, NERC will need to use new approaches to evaluate the changing behavior of the BES and potential impacts from physical and cyber attacks. Reliability assessments may need to evaluate the impacts on recovery and restoration plans from integration of distribution-centric resources, including mitigation of risks from physical and cyber attacks. Further, incorporation of probabilistic, scenario analysis, and transmission adequacy assessment techniques will be needed to measure the full effects on reliability from the variable, energy-limited resources, security, and the evolving system characteristics resulting from the new fleet of generation. Potential areas of focus and development:

- Be a source of credible, independent information that can frame the complex problems and communications to assess the reliability of energy-limited and distribution-centric resources.
- Use tools for assessing reliability risks associated with natural gas infrastructure, including gas storage and pipeline delivery:
  - This assessment should include a study of pipeline capacity and contingencies.
  - Fuel availability and deliverability should be specifically considered and integrated into resource adequacy and other planning assessments.
- Add probabilistic, scenario analysis, and transmission adequacy assessment techniques into NERC’s traditional reserve margin metric approach to measure the effects on reliability from the both grid and distribution integrated variable, energy-limited resources, distributed energy resources, and the associated evolving system characteristics.
- Incorporate the availability and control of distribution-centric distributed resources and demand response into the assessment of reliability risk. This includes measurement of the amount of operator control available compared to the amount needed for the reliable operation of the BES.
- Document reliability considerations and requirements from the reliability value of fuel and resource diversity, sufficient amount of control with the addition of distribution-centric resources, and VERs capability to contribute to replenishment of ERS.
Recovery and Restoration
The electrical sector provides an indispensable service and historically high reliability, even in the face of extreme conditions and severe events. However, government, regulators, and consumers have increasing expectations for system performance as well as the ability to quickly recover and restore from severe conditions or events. As the structure and characteristics of the grid change, recovery and restoration plans will need to include an all-hazards approach to address existing and emerging risks. Potential areas of focus and development:

- Foster the development of risk-based approaches to evaluate extreme conditions and the incremental value as well as the potential benefits from either addressing or not addressing these risks, including discussions with the insurance industry to understand valuation of severe risks.
- Promote an all-hazards approach to grid restoration and recovery plans. Include scenarios for centralized and decentralized resource control, along with physical and cyber security mitigation.
- Acquire a deeper understanding of the consequences from extreme events on interdependent infrastructures, such as natural gas, telecommunications, and transportation, as well as potential risk mitigation options.
- Develop an improved understanding of supply chain cyber security issues and the potential impact on BES reliability.

Situational Awareness and System Control (with the Integration of New Technologies)
The changing resource mix, gas dependency, and resource adequacy challenges outlined above require greater understanding of the individual technologies and how they can be integrated into overall grid operations and control. The changing nature of the load combined with potential increases in micro grids, distributed generation, DSM programs, and rooftop solar will impact grid operations. Some of these technologies may result in less visibility for the system operators and less controllability for the dispatchers. Additionally, the sophistication of the operator’s tools with increased information and greater data delivery speeds will place burdens on system operators. This complexity of the individual technologies and their inter-relationships is driving a perception of increased vulnerability. Leveraging technology, while attempting to achieve simplicity in operations and planning, is a critical task. Potential areas of focus and development:

- Assess the impact of changing technologies and their potential impacts on reliable operations.
- Consider the impacts of ERS on interconnection-wide reliable operations by:
  - Completing the development and deployment of the ERS framework and tools
  - Studying the development of technology-neutral Reliability Standards for ERS
- Ensure the visibility, situational awareness, and dispatch or control of a sufficient amount of distributed and non-traditional resources as needed by system operators to ensure BES reliability.
- Foster system operator training and situation awareness that focuses on simplifying operations for users in an environment rapidly becoming too complex.
- Develop tools to evaluate the reliability impacts of the changing composition of load, to include electric vehicles.
- Engage equipment vendors in developing built-in solutions to address security vulnerabilities, resilience, failure prevention, and adequate controls.
- Engage the Institute of Electrical and Electronics Engineers (IEEE) and the International Electrotechnical Commission (IEC) in producing timely technical standards for grid reliability, resource interconnection, and security.
• Work with government and other regulators to develop resource interconnection requirements that ensure system operators can continue to maintain ERS and provide sufficient amount of control of grid and distribution connected resources to ensure the reliable operation of the BES.
Appendix 3: Mapping of 2015 RISC Profile Measures of Performance and Effectiveness to Strategic Plan

The 2015 ERO Reliability Risk Priorities Report and Supplemental Technical Summary sets forth the results of the RISC’s continued work to define and prioritize risks for the reliable operation of the BES and provides recommendations regarding the strategic approach NERC should take to enhance reliability and manage those risks. The Supplemental Technical Summary provides risk profiles, which include a complete description of the risk to BES reliability, a status of current risk management activities, as well as a series of recommendations and measures of performance and effectiveness in advancing associated reliability objectives.

[NOTE: This appendix will identify how the ERO Reliability Risk Priorities Report and Supplemental Technical Summary risk profile’s recommendations and measures of performance and effectiveness are mapped to the three-year strategic goals, annual metrics, and longer-term strategic planning considerations in this strategic plan. At this time, only the risk profiles are identified below; however mapping will be included in the strategic plan to be developed in 2016.]

<table>
<thead>
<tr>
<th>RISC Profile</th>
<th>Applicable Longer-term Strategic Planning Consideration</th>
<th>Applicable Goal and Metric</th>
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</thead>
<tbody>
<tr>
<td>Risk Profile #1 – Regulatory Uncertainty</td>
<td></td>
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</tr>
<tr>
<td>Regulatory uncertainty reflects the risk from a combination of uncertainties surrounding federal, state, or provincial regulatory or statutory changes that could result in requirements affecting existing or planned elements of the BPS. Further, these uncertainties are amplified as market rules and either do not address reliability concerns or develop or propose rules and provisions that present market signals that can interfere with BPS reliability. These different requirements, the uncertainties in the provisions, and the timing of respective implementation and requirements can conflict from reliability view or result in infrastructure decisions that weaken reliability resilience or flexibility. Finally, these risks are magnified in an increasingly complex shift within the resource mix, the planning and operating environment.</td>
<td>[Recommendations/measures of performance of effectiveness to be added]</td>
<td></td>
</tr>
<tr>
<td>Risk Profile #2A – Changing Resource Mix</td>
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<td></td>
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<tr>
<td>Changes in the composition of generation resources and load characteristics are anticipated to continue or accelerate over the coming decade, driven by decisions made by individual consumers and companies. The resulting reliability behavior and dynamics of the BPS increasingly differs from the system’s underlying design. Further, the resource mix changes are being accelerated by economic, regulatory, and policy driven requirements. These requirements are leading to retirements of synchronous generation and additions of asynchronous forms of generation, accentuating the rapid changes to the reliability characteristics.</td>
<td>[Recommendations/measures of performance of effectiveness to be added]</td>
<td></td>
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<tr>
<td>Risk Profile #2B – Inadequate Planning Coordination</td>
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<tr>
<td>The planning and coordination for variable and intermittent resources heightens the need to develop adequate probabilistic tools, methods, and the corresponding coordination functions. This is increasingly the case as different types of resources, retirements of synchronous resources, new technologies, and distributed resources contribute to more complex reliability behavior and more comprehensive coordination. The ability of markets and nonmarket areas to provide signals for needed additional generation introduces another layer of planning and coordination. Further, as markets and nonmarket areas employ different mechanisms to identify and incorporate new resources, additional planning tools and coordination are essential at the seam intersections, particularly as the boundaries of balancing areas, RTOs, and markets continue to evolve. Inadequate coordination of planning at the seams can lead to instances where</td>
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<tr>
<td>Risk Profile #2C – Ineffective Resource Planning</td>
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<tr>
<td>Plant retirements and the changing resource mix are leading to cases where resource margins are declining and may be inadequate to ensure firm demand is served at all times. Traditional measures to assess the adequacy of the BPS, centered on reserve margins at peak times, are increasingly ineffective to provide sound reliability perspectives on the overall resource adequacy for the BPS.</td>
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<thead>
<tr>
<th>Risk Profile #2D – Generator Unavailability</th>
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<tbody>
<tr>
<td>Extreme weather conditions over extended periods can lead to very high demands for electricity and contribute to the simultaneous loss of large amounts of generation. This combination of generation unavailability and high electricity demand can lead to the need for emergency operation actions (including shedding load or triggering emergency resources) needed to maintain reliability and avoid cascading/uncontrolled separation of the overall BPS.</td>
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<table>
<thead>
<tr>
<th>Risk Profile #3A – Inadequate Maintenance/Asset Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>The failure to maintain and manage BPS equipment and transmission rights of way can represent a latent risk to BPS reliability. Such a risk may manifest either as a direct or indirect contributor to an unplanned event or disturbance incident that results in an abnormal system condition.</td>
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<thead>
<tr>
<th>Risk Profile #3B – Protection System and Single Points of Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A fault accompanied by a failure of a protection system component or a single point of failure (SPF) could result in expanding the severity of transmission/generation contingencies, leading to increased proximity to instability or other BPS reliability concerns, violations of applicable thermal or voltage ratings, unplanned or uncontrolled loss of demand or curtailment of firm transfers, or cascading outages. The presence of SPFs within the protection system can further exacerbate the severity of otherwise minor BPS outages by resulting in wider zones of disruption and operating under system conditions not completely analyzed. Inadequate protection system coordination potentially increases the severity and magnitude of events due to unnecessary trips. Protection system misoperations (PSMs) are a significant threat to BPS reliability and have been demonstrated to increase the severity of contingencies and there is limited evidence of declining rates of misoperations as well as wide ranges of misoperation performance among Regions and entities.</td>
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<thead>
<tr>
<th>Risk Profile #3C – Loss of EMS- Situational Awareness</th>
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</thead>
<tbody>
<tr>
<td>The loss of situational awareness associated with the loss of Energy Management Systems (EMSs), inadequate decision-support tools, and ineffective alternate procedures can represent a latent reliability risk that compromises the operational visibility of local and neighboring entities’ operations and effective management of reliability in real time that could lead to interconnection-wide reliability issues.</td>
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<tr>
<th>Risk Profile #4A– Cyber Security</th>
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</table>
Cyber security vulnerabilities generally refer to reliability risks to the BPS that include the expanding use of both network and digital assets across BPS elements while increasing the interrelationships with distributed resources. These vulnerabilities can be exploited through the use of computer-based attacks with the intention of damaging or destroying a computer network or BPS functions. Cyber vulnerabilities represent an area of increased focus due to the potential for harm and disruption that it represents to utilities, telecommunications, and other industries. This potential risk to the BPS arises from exploits of respective vulnerabilities arising from the expanding use of network-based devices coupled with the expanding use of digital control assets from all forms of resources additions, in particular renewables and distributed generation.

<table>
<thead>
<tr>
<th>Risk Profile #4B – Extreme Physical Natural Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>The likelihood and risk to reliability from extreme physical events, such as severe weather like Hurricanes Katrina and Sandy or the Polar Vortex, that can lead to extensive damage potentially impacting large portions of a Region or interconnection is stable. At the same time, the expectations among customers, government, and others for effective and timely restoration and recovery are increasingly heightened. As a result, the potential BPS impact consequences and increasing expectations are high enough that additional risk mitigations warrant attention.</td>
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<table>
<thead>
<tr>
<th>Risk Profile #4C – Extreme Physical Man-made Events</th>
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<tbody>
<tr>
<td>While the likelihood of extreme physical events (such as a coordinated or localized physical attack) that lead to extensive interconnection-wide damage is low, the potential consequences are high enough that additional risk mitigations warrant attention.</td>
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<thead>
<tr>
<th>Risk Profile #4D - Pandemic</th>
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<tbody>
<tr>
<td>The risk of a pandemic is unique when compared to other risk areas. This risk area may impact a large number of people who become infected with a disease that can be transmitted from human to human. When a pandemic occurs, severe loss of uniquely trained staff will be experienced across the ERO and the industry.</td>
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<tr>
<th>Risk Profile #5 – Inadequate Human Performance</th>
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<tbody>
<tr>
<td>Human Performance (HP) error is indicative of conditions that depart from expected behavior and can result in an event if barriers are not in place and effective. Latent errors include deficient management controls, processes, design, and at-risk behaviors. An HP event is a consequence of an HP or human factors error, and an underlying cause or contributing factor arises in the increasingly complex BPS reliability behavior, expanding information streams, and conversion aspects from data into actionable data.</td>
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<tr>
<th>Risk Profile #6 – Inadequate Event Response or Recovery</th>
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<tbody>
<tr>
<td>The risk associated with inadequate event response/recovery incorporates the failure to safely and efficiently restore transmission service to critical load in a timely manner. Failure is indicated when insufficient methods or resources are deployed following an event and such methods contribute to prolonged transmission outage durations, thereby increasing the duration of BPS unreliability.</td>
</tr>
</tbody>
</table>
Appendix 4: 2017 ERO Enterprise BP&B Development Schedule

Annually, NERC and the Regional Entities collaborate to develop BP&Bs that align priorities, activities, and resources to the goals and objectives set forth in the strategic plan, including associated RISC recommendations. Below is a high level overview of the annual ERO Enterprise BP&B development schedule, including various opportunities for stakeholder input prior to finalization and approval.

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Activities</th>
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</thead>
<tbody>
<tr>
<td>November–February</td>
<td>NERC and Regional Entities develop common BP&amp;B assumptions which are used to guide resource allocation</td>
</tr>
<tr>
<td>March–April</td>
<td>NERC and Regional Entities coordinate on BP&amp;B development, including preparation of budgets, forecasts and drafting of BP&amp;Bs</td>
</tr>
<tr>
<td>Late April</td>
<td>Briefing of trades and MRC BP&amp;B Input Group regarding NERC and Regional Entity BP&amp;B development</td>
</tr>
<tr>
<td>April–June</td>
<td>Regional Entities engage in individual corporate and stakeholder review processes for their individual board approvals of their BP&amp;Bs</td>
</tr>
<tr>
<td>Early May</td>
<td>BP&amp;Bs update provided to NERC Finance and Audit Committee (FAC) and stakeholders at NERC FAC quarterly open meeting</td>
</tr>
<tr>
<td>Mid-May</td>
<td>First drafts of NERC and Regional Entity BP&amp;Bs posted on NERC website, including webinar review</td>
</tr>
<tr>
<td>Late June</td>
<td>Comments due on first drafts</td>
</tr>
<tr>
<td>Early July</td>
<td>Update meeting with trades and MRC BP&amp;B Input Group</td>
</tr>
<tr>
<td>Mid-July</td>
<td>Final drafts posted, including webinar review</td>
</tr>
<tr>
<td>End of July</td>
<td>Comments due on final drafts</td>
</tr>
<tr>
<td>Early August</td>
<td>NERC FAC reviews recommendation on final BP&amp;Bs and Assessments</td>
</tr>
<tr>
<td>Early August</td>
<td>NERC Board of Trustees approval of BP&amp;Bs and Assessments</td>
</tr>
<tr>
<td>Late August</td>
<td>Regulatory filings with FERC and Canadian Provincial Authorities</td>
</tr>
<tr>
<td>October</td>
<td>FERC approval of BP&amp;Bs and Assessments</td>
</tr>
</tbody>
</table>
Assessing Reliability for an Evolving Bulk Power System

Action
Discussion

Background
Since the late 1960s, the North American Electric Reliability Corporation (NERC) reliability assessments have been a source of credible, independent information on the adequacy of the bulk power system for the long-term 10-year horizon. Reliability assessments focused historically on measuring reserve margins, calculated by the amount of generating capacity higher than the total peak demand, normalized by the peak demand, with weight given to the projected resources based on their level of certainty of availability. This assessment approach uses normalized weather conditions at daily peak load conditions and, in most cases, relies on a probabilistic-based adequacy criterion using a percent target capacity reserve margin. Traditionally, reliability assessment of reserve margins are compared to these targets to assure sufficient projected resources are available to meet forecast demand.

The generation resource mix is undergoing a metamorphous from large, remotely located coal and nuclear fired power plants, towards gas-fired and renewable energy-limited resources. An increasing amount of resources are expected on the distribution system, which creates both challenges and opportunities for operators who need to be able to observe, control, and dispatch resources, balance generation and demand, and ensure a stable bulk power system (BPS).

With this transforming resource mix, NERC is re-evaluating reliability assessment methods and scope to ensure their continued value in analyzing the adequacy of the BPS for the long-term, 10-year horizon.

Plan for Advancing NERC’s Analytic Capabilities for Reliability Assessments
As the resource mix and its delivery undergoes unprecedented change, a re-evaluation of reliability assessment approaches and tools is needed to ensure that these continue to provide the insights required to independently assess and make recommendations in support of projected system performance to assure the reliable operation of the BPS.

In order to meet the goals and objectives for independent reliability assessments of this evolving BPS, analytical methods, measurement processes, criterion, and tools must be able to evaluate beyond supply adequacy. Accordingly, in addition to current capabilities, NERC, working with the Regional Entities and the technical stakeholder committees, intends to perform the following analysis and assessment to begin addressing this transformation:

1. Increased statistical analysis to identify and recognize ongoing trends and risks to reliability.
2. Advancement of interconnection-wide analysis and development of technical studies and practices to use them.
3. Analysis and incorporation of cyber and physical considerations on electric system planning and operation.

4. Incorporating probabilistic, scenario analysis, and transmission adequacy assessment techniques to measure evolving system characteristics.

5. Using tools for assessing reliability risks of natural gas infrastructure, including gas storage and pipeline delivery.

6. Increased analytical understanding the interface of distribution-centric resources and their importance to bulk power system reliability.

NERC has requested policy input from the MRC on strategic considerations and reliability assessment analysis requirements needed to assure that the BPS remains reliable. Additionally, NERC has requested input on whether there are additional industry groups that NERC should consider engaging, as well as additional steps NERC could take to engage stakeholders. NERC staff will provide a summary of the feedback received in response to the request for policy input at the May 4, 2016 MRC meeting.
**ERO Enterprise Strategic Planning Framework**

**Action**
Discussion

**Background**
In recent years, the annual Electric Reliability Organization (ERO) Enterprise strategic planning process has resulted in the following documents (links to the current versions are provided):

1. **ERO Enterprise Longer-term Strategic Planning Considerations** – Discusses Bulk Electric System reliability issues for the 5 to 15-year horizon
2. **ERO Enterprise Strategic Plan** – Includes strategic goals for the next three years
3. **ERO Enterprise and Corporate Metrics** – Provides annual metrics to measure the ERO Enterprise’s progress in attaining the strategic goals

As part of ongoing Member Representatives Committee (MRC) policy input on these documents, greater alignment was desired among the longer-term strategic planning considerations, three-year strategic plan goals, and annual metrics. Input also included requests for increased visibility as to how the longer-term considerations and risks identified in the Reliability Issues Steering Committee’s (RISC’s) annual *ERO Reliability Risk Priorities Report* and *Supplemental Technical Summary* inform the longer-term considerations, goals, and metrics.

In response, a draft redesigned strategic plan framework has been created to consolidate and align the documents. The proposed framework, which incorporates feedback from the NERC Board of Trustees (Board), Regional Entity leadership, and the RISC, does the following:

1. Integrates the items discussed above by listing the associated metrics, risk profiles from the *Supplemental Technical Summary*, and longer-term considerations for each strategic plan goal, as appropriate;
2. Provides the details on the metrics, risk profiles, and longer-term considerations in respective appendices; and
3. Since NERC and the Regional Entities Business Plan and Budgets (BP&Bs) align priorities, activities, and resources to the goals and objectives set forth in the strategic plan, includes an additional appendix overviewing the annual BP&B development schedule.

NERC requested MRC policy input on the draft strategic plan framework as to whether the document format conveys a clearer, more streamlined view of the ERO Enterprise’s strategic plan, including providing clear linkages among the ERO Enterprise’s goals, metrics, longer-term considerations, and risk priorities. To provide a better picture of the approach, the draft was populated with the content from the current strategic planning documents (2016–2019 cycle).

The finalized framework will be used for the 2017–2020 strategic plan, which will include reduced and refined metrics that are outcome-based and more clearly linked to the strategic goals. The MRC and Board will have opportunities to provide input on the content for the 2017–2020 strategic plan, both before and after the content is developed.
**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 4, 2016, the MRC can expect to continue its increased participation and dialogue during the Board Committee meetings in Chicago. 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 April 27, 2016, instead of meeting in-person in Chicago. The agendas and associated background materials are posted approximately one week in advance of the meetings on the following webpages:

- Corporate Governance and Human Resources Committee
- Standards Oversight and Technology Committee
- Compliance Committee
- Finance and Audit Committee
Cost-Effectiveness Approach and Pilot

**Action**
Information

**Background**
Federal, State and Provincial regulatory authorities, the NERC Board of Trustees (Board), Regional Entities, and many industry stakeholders, have expressed interest in the identification of the costs incurred from implementing NERC Reliability Standards compared to risks addressed. The desire is to balance costs and risks during the standards development and revision process.

In the past, determination of the costs from the implementation of NERC Reliability Standards was implicitly considered throughout the standards development process. Through this process, detailed comments are sought and modifications to proposed standards are made based on input from the standards ballot pool, which represents a cross-section of interested participants. However, some entities have requested a more direct assessment of costs, citing a number of different reasons. For example, registered entities have identified the need to estimate implementation costs for budgeting and rate case development. Further, many state regulators would like this information to determine consumer costs implications.

NERC and the Standards Committee (SC) remain committed to developing ideas and approaches to consider cost effectiveness of standards. Efforts to address costs have included the initial version of the Cost of Effectiveness Analysis Process (CEAP). Throughout 2014, two pilots of this initial approach for evaluating cost effectiveness were conducted. At the January 12, 2016 Member Representatives Committee (MRC) Informational session, NERC staff presented an additional pilot approach (see Agenda Item 3c) which builds upon lessons learned and input obtained from stakeholders during the 2014 CEAP pilots. This latest approach is being developed in response to a Board request for policy input on a cost effectiveness method and pilot proposal. A summary of the pilot proposal and of the policy input received was provided at the February 10, 2016 MRC meeting. Based on input received, the SC and NERC staff are continuing development on the pilot and other related initiatives.

An update on the cost effectiveness pilot will be provided at this meeting. This update will cover the work of the Standards Committee Process Subcommittee and how cost effectiveness is considered in the Reliability Standard metrics and in enhanced periodic reviews. Further, the update will show how each of these work products may inform the others to help provide a reasonable approach to the consideration of cost effectiveness in standards development.
Clean Power Plan: Phase II Assessment

Action
Information

Background
In its Initial Reliability Review and Phase I Special Reliability Assessment, NERC highlighted its objective of publishing assessments on the Clean Power Plan (CPP) as the Environmental Protection Agency (EPA) prepared to issue its final rule. On August 3, 2015, the EPA released a final rule that would reduce carbon CO₂ emissions from existing power plants (Clean Air Act Section 111(d)). NERC’s phased approach for evaluating the final rule as well as providing reliability guidance to states was proposed at the August 12, 2015 MRC meeting in Toronto.

In January 2016, NERC released a guidance document, Reliability Considerations for Clean Power Plan Development, for electric utility agencies, state environmental agencies, and policymakers about the reliability considerations and risks that should be considered for bulk power system reliability.

In mid-May, NERC will release a Phase II assessment which revises its initial Phase I analysis and calibrates it with revised assumptions and requirements set forth in the final rule. This Phase II assessment uses the Planning Committee’s Advisory Group on CPP to support the technical input on this assessment.

NERC is presently in the outreach stage working with states and state planners to incorporate the reliability considerations into the final plans submitted to the EPA. Coordination with states is particularly important with this assessment, as the focus relies on ensuring state policy decisions are aligned with, and consider, the reliability of the Bulk-Power System. A primary role for NERC in this outreach plan is for NERC and its technical experts to be available as a resource to state plan developers. NERC desires to participate and work with state plan developers (from any agency) on reliability considerations and potential challenges as well as opportunities that may arise with a particular plan.

Phase II Assessment
The Phase II Assessment examines the potential grid reliability impacts from a resource mix perspective created by the implementation of the EPA’s CPP. The assessment uses a production cost modeling approach to determine several different future resource scenarios.

The Phase II report focuses on providing insight and guidance about potential reliability aspects that could result from implementation of the CPP final rule rather than specifically assessing alternative CO₂ reduction methods. NERC evaluated the composite framework of potential outcomes to help guide the planning and implementation process.
For its resource adequacy analysis, NERC used two generator dispatch models: AURORAxmp and IPM.1 Both used NERC’s common input assumptions. The findings and conclusions are based on the independent analysis of the results by NERC’s Reliability Assessment staff.

NERC’s Phase II assessment examines the following scenarios for each model:

- **Reference Case** – a business as usual forecast without implementation of the CPP.
- **CPP Case** – a sensitivity case around CPP implementation with limited trading of emission reduction credits.
- **High Renewable Penetration** – a sensitivity case that assigns lower costs to technological development and operational and maintenance costs (O&M) associated with renewable technologies.
- **Accelerated Nuclear Retirements** – a sensitivity case that applies an accelerated rate to nuclear retirements.
- **National Trading** – a sensitivity case that assumes trading of emission reduction credits will be optimized across all states.

NERC leveraged key information from these scenarios to identify potential cumulative impacts on a region-wide or interconnection-wide basis. Throughout the Phase II Assessment, a stakeholder advisory group formed by the NERC Planning Committee provided advice, input, and vetting of the underlying assumptions and publicly available data.

Further analysis by the ERO will include system and transmission-level analysis. Regional Entities will use the Phase II resource mix scenarios for transmission security and adequacy analysis. NERC will work with the Eastern Interconnection Assessment Group to conduct interconnection-wide analysis, such as assessing frequency response and short-circuit strength.

Finally, there are three major policy, technology and market uncertainties worth noting that could have potential impacts on reliability, and given the uncertainty of their outcome, on NERC’s Phase II Assessment. First, the final rule is in litigation and a Supreme Court stay is in effect. The ultimate outcome of the legal challenges is uncertain. Second, the final rule provides a framework that gives states flexibility in how they develop their final program limitations and state implementation plans. Different alternative state policy options could create incentives that could influence compliance plans and result in a range of grid reliability impacts. Finally, changes in future electricity demand growth, generation technology advancements, and fuel markets could directly influence power supplier compliance costs and plans.

**Key Dates**

- May 6, 2016 – Send embargoed report to the NERC Board and MRC
- May 13, 2016 – NERC Board to consider report for approval of publication
- May 17, 2016 – Publish report

1 Further information on the AURORAxmp and IPM models are included in Appendix A of the Phase II Assessment.
Gas-Electric Interdependency Special Short-Term Assessment

Action
Information

Short-Term Special Assessments
NERC’s new Short-Term Special Assessments are topic-oriented outlooks that identify potential reliability risks over the next 18-24 months. Each assessment provides an independent evaluation of potential resource issues, as well as a review of recent studies, policies, and initiatives that impact a particular issue.

2016 Short-Term Reliability Assessment: Operational Risk Analysis of Natural Gas Plant Availability on Resource Adequacy
NERC continues to assess the increasing risk of the interdependency between electricity and natural gas, which is most visible during extreme winter conditions. NERC conducted two special assessments on gas-electric interdependencies in 2011 and 2013. While substantial progress has been made in the last five years to improve coordination between the natural gas pipeline and electric industries, there are remaining concerns.

In mid-May, NERC will release its 2016 assessment on gas-electric interdependencies. This assessment identifies potential reliability concerns through scenario and resource adequacy analysis. The assessment focuses on areas with high natural gas generation penetration—greater than 50%. For this assessment, the NPCC-New York, NPCC-New England, MISO, PJM, and WECC-CA-MX assessment areas were selected for evaluation. NERC examines the changing resource mix in these areas and determines how much gas-fired generation has been added and how much is planned during the next 18-24 months. Scenarios are then created using either NERC GADS, or a study developed by the reliability entity and verified by NERC and/or the Regional Entities, to project forced outage and unit availability.

Key Dates
- May 6, 2016 – Send embargoed report to the NERC Board and MRC
- May 13, 2016 – NERC Board to consider report for approval of publication
- May 17, 2016 – Publish report

1 A Primer of the Natural Gas and Electric Power Interdependency in the United States; Accommodating an Increased Dependence on Natural Gas for Electric Power. Phase II: A Vulnerability and Scenario Assessment for the North American Bulk Power System.
2016 State of Reliability Report

Action
Information

Background
The NERC 2016 State of Reliability Report continues to build upon the analysis and findings presented in the 2015 State of Reliability Report. This report focuses on analyses of specific aspects of the performance of the bulk power system (BPS) reliability, based on the integration of a wide variety of information and data sources.

The State of Reliability Report is prepared annually to objectively review and assess the state of reliability of the BPS based on the analysis of data and metric trends. The report also provides an integrated view of reliability performance, and identifies potential reliability issues. The key findings and recommendations of the report serve as the technical foundation for NERC’s range of risk-informed efforts addressing reliability performance, and serve as key inputs to the annual ERO Reliability Risk Priorities prepared by the Reliability Issues Steering Committee (RISC). The metrics measured in the report address the characteristics of an adequate level of reliability (ALR) and trends indicate the BPS has been performing consistently well.

An overview of the report and key findings will be presented at the May MRC meeting with consideration of the final report expected to occur at a future Board of Trustees meeting.
Summary of Current FERC Reliability Activities

Action
Information

Background
Provided below is a summary of current activity of the Federal Energy Regulatory Commission (“FERC” or the “Commission”) impacting NERC matters. A presentation of these items will be given by Michael Bardee, Director, Office of Electric Reliability, FERC, during the May 4, 2016 MRC meeting.

Summary

Essential Reliability Services

**Exemption for Wind Generators from Providing Reactive Power**

On November 19, 2015, FERC issued a [Notice of Proposed Rulemaking](#) (“NOPR”) proposing to revise two *pro forma* interconnection agreements, the large generator interconnection agreement (“LGIA”) and the small generator interconnection agreement (“SGIA”), to eliminate the current exemption for wind generators from the requirement to provide reactive power, thereby requiring all newly interconnecting generators (i.e., new generators seeking to interconnect to the transmission system and all existing non-synchronous generators making upgrades to their generation facilities that require new interconnection requests), both synchronous and non-synchronous, to provide reactive power. As noted in the NOPR, the existing *pro forma* LGIA and *pro forma* SGIA both require, as a condition of interconnection, an interconnecting generator to design its generating facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor of 0.95 leading to 0.95 lagging, or a different range if adopted by the Transmission Provider. Wind generators have been exempted from this reactive power requirement absent a study finding the provision of reactive power necessary, because historically, the costs for an interconnection customer to design and build a wind generator that could provide reactive power were high and could have created an obstacle to the development of wind generation. The Commission noted in the NOPR that, with technological advancements, wind generators can now provide reactive power more cheaply, and the cost of providing reactive power no longer presents an obstacle to the development of wind generation.

The Commission stated in the NOPR that its proposal would create comparable reactive power requirements for non-synchronous and synchronous generators, except that non-synchronous generators will only be required to maintain the required power factor range when the generator’s real power output exceeds 10 percent of its nameplate capacity. Additionally, the Commission states that the NOPR proposal seeks to ensure that all generators, synchronous and non-synchronous, are treated in a not unduly discriminatory or preferential manner, as required by Sections 205 and 206 of the Federal Power Act (“FPA”), and to ensure sufficient reactive power is available on the electric grid as more non-synchronous generators seek to interconnect.
Comments on the NOPR were due on January 26, 2016. NERC filed comments in response to the NOPR.

Proposal and Compensation of Primary Frequency Response Notice of Inquiry
On February 18, 2016, FERC issued a Notice of Inquiry (“NOI”) seeking comment whether to reform its rules and regulations regarding primary Frequency Response. Significantly relying on recent analyses in NERC’s Essential Reliability Services Report, FERC stated that it seeks comments on possible actions to ensure that the provision of primary Frequency Response continues to remain at levels adequate to maintain the reliability of the Bulk-Power System in light of the ongoing transformation of the nation’s generation resource mix. The NOI stems from FERC’s concern that not all generation resources provide primary Frequency Response and that generator owners and operators can independently decide whether units provide primary Frequency Response. As a result, the NOI requested comments on: (i) whether the pro forma Large Generator Interconnection Agreement and Small Generator Interconnection Agreement should be amended to require that new generation resources have Frequency Response capabilities as a precondition for interconnection; (ii) the performance of existing resources and whether to impose primary Frequency Response requirements on existing resources (in Reliability Standards, tariffs, or other formats); and (iii) requirements related to procuring and compensating primary Frequency Response. Comments on the NOI are due on April 25, 2016.

Ride-Through Requirements for Small Generators
On March 17, 2016, FERC issued a NOPR under section 206 of the FPA proposing to revise the pro forma SGIA to require new small generation facilities to “ride through” and stay connected during abnormal frequency and voltage events. In particular, the Commission proposes to add new Section 1.5.7 to the SGIA to require that (i) interconnection customers maintain frequency and voltage ride through capability and not disconnect after a frequency or voltage event; and (ii) transmission providers coordinate the small generating facility’s protective equipment settings with any automatic load shedding program.

The Commission previously examined whether to require that small generators maintain ride through capability in Order Nos. 2006 and 792. The NOPR explains that in Order No. 792, the Commission declined to require ride through capability, because the Institute of Electrical and Electronics Engineers (“IEEE”) was revising its standards and planned to evaluate frequency and voltage ride through requirements. The NOPR states that, thus far, IEEE has included permissive, rather than mandatory, ride through requirements. In addition, the NOPR highlights that NERC studies demonstrate the increasing impact that small generating facilities have on the grid in light of the changing resource mix. The Commission also notes that technological developments now permit small generators to maintain ride through capability. Finally, the NOPR adds that the LGIA requires larger generators to maintain ride through capability and that in light of recent developments it would be unduly discriminatory not to impose the same requirements on small generators.

Security of Grid

Geomagnetic Disturbance Mitigation
On May 16, 2013, FERC issued Order No. 779, directing NERC to develop a set of Reliability Standards to address geomagnetic disturbances (“GMDs“) in two stages. The Commission approved the first stage Reliability Standard EOP-010-1 (Geomagnetic Disturbance Operations)
in Order No. 797, issued on June 19, 2014. On January 21, 2015, NERC submitted for Commission approval of proposed Reliability Standard TPL-007-1, the second stage Reliability Standard contemplated by Order No. 779. Proposed Reliability Standard TPL-007-1 requires applicable owners and operators of the Bulk-Power System to conduct initial and on-going assessments of the potential impact of a technically supported, 1-in-100 year benchmark GMD event (referred to as the “Benchmark GMD Event”) on Bulk-Power System equipment and the Bulk-Power System as a whole. The proposed standard also specifies parameters for assessments that will identify impacts from this Benchmark GMD Event and requires corrective action to protect against instability, uncontrolled separation, and cascading failures of the Bulk-Power System. FERC issued a NOPR proposing to approve Reliability Standard TPL-007-1 on May 14, 2015, requesting comments on several items, including whether the Benchmark GMD Event and the Thermal Impact Assessments should be modified so that they are not based solely on spatially-averaged data. FERC also requested comments on whether the proposed standard should require installation of geomagnetically-induced current monitors and magnetometers in enough locations to provide adequate analytical validation and situational awareness.

FERC held a technical conference on the pending TPL-007-1 Reliability Standard on March 1, 2016, which included discussion on the following topics: 1) the Benchmark GMD Event; 2) GMD Vulnerability Assessments, including impacts of GMD events on equipment and systems and the current state of knowledge for thermal impacts of GMDs on transformers; and 3) monitoring and future work, including the current state of GMD monitoring, the potential for future monitoring, and the availability of monitored data to researchers and the public. The Commission has not yet issued an order on the proposed TPL-007-1 standard.

Supply Chain Management
On July 16, 2015, FERC issued a NOPR related to proposed revisions to the cybersecurity Critical Infrastructure Protection Reliability Standards (“CIP Revisions NOPR”). While proposing to approve the revisions to the CIP standards, the Commission, among other things, proposed to direct NERC to develop a new or modified Reliability Standard to provide security controls for supply chain management for industrial control system hardware and software, and computing and networking services associated with Bulk Electric Systems operations. On January 21, 2016, the Commission issued Order No. 822, approving the revisions to the CIP standards and directing NERC to make certain modifications to those standards. Order No. 822, however, did not address the proposed supply chain management directive as, based on the comments on the NOPR, the Commission scheduled a staff-led technical conference for later in the month to facilitate a structured dialogue on supply chain risk management issues prior to making any determination on the proposal. On January 28, 2016, the Commission hosted the supply chain management technical conference. The Commission has not yet issued an order on the supply chain management proposal.

Restoration and Recovery Report
In September 2014, FERC, in partnership with NERC and the Regional Entities, initiated a joint staff review to assess entities’ plans for restoration and recovery of the Bulk-Power System following a widespread outage or blackout. The objective of the review was to assess and verify the electric utility industry’s Bulk-Power System recovery and restoration planning, and to test the efficacy of related Reliability Standards in maintaining and advancing reliability in that respect. In conducting this review, the joint staff review team gathered information from a representative sample of nine registered entities with significant bulk power grid
responsibilities (the “participants”), including some entities that are registered with NERC in multiple functions.

The review team examined the restoration, response and recovery plans of each participant, along with supporting information. Documents reviewed included, but were not limited to, Reliability Coordinator-approved restoration plans, procedures for deploying blackstart resources, steady state and dynamic simulations testing the effectiveness of the plans, and cyber security incident response plans and recovery plans for critical cyber assets. The team also met with or conferred with the participants to discuss the above plans, as well as their experiences with recent restoration, response and recovery exercises or drills, and observed a number of restoration training exercises.

In January 2016, the joint staff issued a report with observations on the participants’ plans, an assessment of the related Reliability Standards, and with recommendations for potential enhancements to the plans, related practices, and the provisions of certain Reliability Standards. Overall, the joint staff review team found that participants have system restoration plans that, for the most part, are thorough and highly-detailed. The reviewed plans require identification and testing of blackstart resources, identification of primary and alternate cranking paths, and periodic training and drilling on the restoration process under a variety of outage scenarios. Likewise, the joint staff review team found that participants had extensive cyber security incident response and recovery plans for critical cyber assets covering the majority of the response and recovery stages. In addition, the team observed that each participant has full time personnel dedicated to the roles and responsibilities defined in their respective response and recovery plans.

The joint staff review team also identified several opportunities for improving system restoration and cyber incident response and recovery planning and readiness through, among other things, improvements to the clarity of certain Reliability Standard requirements. The joint staff review team accordingly recommended that measures be taken in line with these changes.

Data Sharing
On September 17, 2015, FERC issued a NOPR to require that NERC make its Transmission Availability Data System (“TADS”), Generating Availability Data System (“GADS”), and protection system misoperations databases available for review by FERC and its staff (“Database NOPR”). Specifically, FERC proposed to require that NERC provide FERC with access (i.e., view and download data), on an ongoing and non-public basis, to the TADS, GADS, and protection system misoperations databases. FERC stated that its proposed access, limited to data regarding U.S. facilities, is necessary for FERC (1) to evaluate the need to direct new or modified Reliability Standards; and (2) to better understand NERC’s periodic assessments and reports.

NERC filed comments in response to the Database NOPR on December 15, 2015, proposing an alternative that would provide the Commission with anonymized versions of TADS, GADS, and protection system misoperations data under a two-phase approach facilitated by a Commission and NERC staff Information Sharing Working Group established within 90 days of the Commission’s order on the NOPR. The Commission has not yet issued an order in response to the Database NOPR.
Accountability Matrix

**Action**
Information

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

**Attachment**

1. Accountability Matrix – April 20, 2016
<table>
<thead>
<tr>
<th>Identifier</th>
<th>Topic</th>
<th>Summary of Commitment</th>
<th>Comments/Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-01</td>
<td>ERO Enterprise Strategic Planning Redesign and Metrics</td>
<td>(1) Consolidate strategic planning documents to ensure clearer linkages to the various inputs. (2) There should be a reduced set of metrics that are outcome and results-based.</td>
<td>In 2016, NERC is consolidating its strategic planning documents and enhancing the linkages among the goals, metrics, and longer-term considerations, as well as the risk priority recommendations and measures of performance that have been identified by the RISC. NERC presented a schedule and its initial thoughts on redesigning the strategic plan and metrics at the February Board/MRC meetings. NERC will request input in April on the format of the proposed framework. NERC will seek input on content in July and October and submit the 2017-2020 strategic plan to the Board for approval in November.</td>
</tr>
<tr>
<td>2016-02</td>
<td>2017 Business Plan and Budget Linkage to Strategic Plan</td>
<td>Include clearer linkages in the 2017 BP&amp;B to the strategic plan goals.</td>
<td>Will be addressed in the 2017 BP&amp;B.</td>
</tr>
<tr>
<td>2016-03</td>
<td>Efficiencies from Program Area Transformations in 2017 Business Plan and Budget</td>
<td>The 2017 BP&amp;B should identify efficiencies gained from the maturation and transformation of various program areas (i.e., risk-based CMEP, standards).</td>
<td>Text on this topic will be included in the draft 2017 BP&amp;B.</td>
</tr>
<tr>
<td>2016-04</td>
<td>Communication of Action Plans in Response to Survey Results</td>
<td>Provide more clarity around action items from survey results.</td>
<td>NERC will summarize any actions already taken in response to the 2015 survey results before the next survey is issued in May 2016. Additionally, NERC is revisiting the 2015 survey results to identify any additional actions to be taken, which will be presented during the August Board/MRC meetings, in addition to actions to be taken in response to the 2016 survey.</td>
</tr>
<tr>
<td>2016-05</td>
<td>Internal Controls Evaluations (ICE)</td>
<td>Increase registered entity engagement with internal controls evaluations.</td>
<td>ICE continues to be discussed and possibly refined through consistency efforts.</td>
</tr>
</tbody>
</table>
Agenda Item 10
MRC Meeting
May 4, 2016

Update on Regulatory Matters
(As of April 20, 2016)

Action
Information

**FERC Orders Issued Since the Last Update**
FERC orders are available on the NERC website [FERC Orders](#) page.

**NERC Filings to FERC Since the Last Update**
NERC filings to FERC are available on the NERC website [FERC Filings](#) 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 MOU](#) 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. April 25, 2016 – NERC will submit comments in response to FERC’s Notice of Inquiry regarding Essential Reliability Services and the Evolving BPS – Primary Frequency Response. *Docket No. RM16-6-000*

2. May 16, 2016 – 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*


5. May 31, 2016 – NERC must submit the annual true-up filing report of comparisons of actual to budgeted costs for the year 2015 for NERC and the Regional Entities. 
   *Pending Board approval*

6. June 6, 2016 – NERC will submit proposed Reliability Standards TOP-010-1 (Real-time Reliability Monitoring and Analysis Capabilities) and IRO-018-1 (Reliability Coordinator Real-time Reliability Monitoring and Analysis Capabilities). 
   *Pending Board approval*

   *Pending Ballot Body and Board approval*

   *Pending Board approval*

**Mexican Energy Reforms Update**
A commissioner from the Comisión Reguladora del Energía (CRE) provided an update on the implementation of Mexico’s energy reforms during the February 11, 2016 NERC Board of Trustees meeting. Under these reforms, CRE has many new responsibilities and authorities, including establishing regulations for electric reliability and security.

In late 2015, CRE solicited comments on its initial draft reliability regulations, known informally as the “Grid Code.” On March 3, 2016, CRE commissioners approved the first Grid Code, which includes ten NERC Reliability Standards. CRE is required to update the Grid Code annually.

NERC and WECC will continue to serve as a resource to CRE and are working with CRE to develop a memorandum of understanding (MOU) to detail this collaboration. The NERC-WECC-CRE MOU is in addition to the separate Membership and Operating Agreement WECC is negotiating with CRE to detail WECC’s role in monitoring compliance with certain Reliability Standards in the Mexican state of Baja California Norte.