

Agenda

Technology and Security Committee

August 14, 2019 | 10:15-11:00 a.m. Eastern

(Please note the Schedule may be adjusted real-time should meetings conclude early and/or extend past their scheduled end time.)

Hilton Quebec
1100 Boulevard René-Lévesque E
Québec, QC G1R 4P3

Conference Room: Salle de Bal (1st Floor)

Introductions and Chair's Remarks

NERC Antitrust Compliance Guidelines and Public Announcement*

Agenda Items

1. **Minutes* — Approve**
 - a. May 8, 2019 Meeting
2. **ERO Enterprise IT Projects Update* — Review**
3. **E-ISAC Update* — Review**
4. **Adjournment**

*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

Technology and Security Committee Meeting

May 8, 2019 | 11:00 a.m. – 12:00 p.m. Central

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

Chair Suzanne Keenan called to order a duly noticed open meeting of the Technology and Security Committee (the “Committee”) of the Board of Trustees (“Board”) of the North American Electric Reliability Corporation (“NERC” or the “Company”) on May 8, 2019, at 10:00 a.m. Central, and a quorum was declared present. The agenda is attached as **Exhibit A**.

Present at the meeting were:

Committee Members

Suzanne Keenan, Chair
Janice B. Case
Kenneth W. DeFontes, Jr.
George S. Hawkins
Roy Thilly

Board Members

Frederick W. Gorbet
David Goulding
Robin E. Manning
James B. Robb, President and Chief Executive Officer
Jan Schori
Colleen Sidford

Committee Members Not Present

Robert G. Clarke

NERC Staff

Charles A. Berardesco, Senior Vice President, General Counsel, and Corporate Secretary
Tina Buzzard, Associate Director
Stan Hoptroff, Vice President, Chief Technology Officer, and Director of Information Technology
Scott Jones, Senior Vice President, Chief Financial and Administrative Officer, and Corporate Treasurer
Bill Lawrence, Vice President, Chief Security Officer, and Director of the E-ISAC
Mark G. Lauby, Senior Vice President and Chief Reliability Officer
Janet Sena, Senior Vice President and Director of Policy and External Affairs

Introduction

Ms. Keenan welcomed the Committee members to the meeting. She acknowledged members of the Committee and thanked Mr. Hawkins for his assistance during the leadership transition.

NERC Antitrust Compliance Guidelines

Ms. Keenan directed the participants’ attention to the NERC Antitrust Compliance Guidelines included in the agenda, and indicated that all questions regarding antitrust compliance or related matters should be directed to Mr. Berardesco.

Minutes

Upon motion duly made and seconded, the Committee approved the minutes of the February 6, 2019 meeting as presented at the meeting.

Chair's Remarks

Ms. Keenan reported that Mr. Hawkins attended the E-ISAC Member Executive Committee ("MEC") and working group meetings on April 10, 2019 in Washington, D.C. Mr. Hawkins provided an overview of these meetings, highlighting the excellent attendance and in-depth discussion. He noted several takeaways from the MEC meeting, including communicating the value added by new E-ISAC capabilities and providing information on threats more quickly. Mr. Hawkins also noted that the MEC will consider a metrics proposal at its next meeting. Ms. Keenan noted the positive and improved relationship between the E-ISAC and MEC due to the leadership of Messrs. Robb and Lawrence.

Ms. Keenan reported that the Committee plans a closed session later this year to focus on NERC's cybersecurity posture. She noted that information from this closed session will be shared in open session as appropriate.

E-ISAC Update

Mr. Lawrence provided an update on recent E-ISAC activities, referencing the materials that had been included in the advance agenda package. His presentation highlighted updates in the E-ISAC strategic goals, placing emphasis on relationships and engagement across interdependent sectors. Mr. Lawrence provided an update on E-ISAC's progress executing its long-term strategy, including the areas of member engagement, information sharing, threat analysis, and key activities for 2019-2020. He shared feedback received from the MEC and thanked Mr. Robb and the NERC officer team for their strong support of the E-ISAC.

Mr. Lawrence discussed a recent OE-417 form reporting a "denial of service" incident involving several routers at a registered entity in the WECC region. He reported that the incident does not appear to be the result of a cyber attack, and that the E-ISAC shared relevant information on its portal after the incident was reported.

Mr. Lawrence also provided an update on NERC's November 2019 Grid Security Exercise ("GridEx"). He stated that this GridEx is projected to be the largest, most inclusive event to date, with expected participation from representatives in Australia and New Zealand. He noted the planned improvements for the executive tabletop portion of the exercise.

Mr. Robb thanked Scott Aaronson, Michael Ball, Manny Cancel, and others in industry who are helping the E-ISAC improve its capabilities.

Mr. Jones provided an overview of the preliminary 2020 E-ISAC budget, referencing the materials that had been included in the advance agenda package. He noted that 2020 represents year three in the

execution of the E-ISAC long-term strategy, and the proposed 2020 budget is on track with prior projections and estimates.

ERO Enterprise Information Technology Strategy and Projects Update and Budget Forecast

Mr. Hoptroff provided an update on the ERO Enterprise information technology projects, referencing the materials that had been included in the advance agenda package. With respect to the Align project, he highlighted the key benefits, security features, and expected functionality of the Align system and described NERC's plans for continued stakeholder outreach and training. Mr. Hoptroff also highlighted the key benefits of the common registration tool ("CORES") and the situational awareness tool ("SAFNR") upgrade projects. He reported that NERC held a webinar on March 21, 2019 to discuss the benefits of the SAFNR upgrade project and plans to launch the project by the end of 2019. Mr. Hoptroff concluded his presentation with a discussion of ongoing work on E-ISAC portal enhancements.

Ms. Keenan stated her appreciation for NERC's holistic approach to its technology projects, including change management and outreach.

March 28, 2019 Federal Energy Regulatory Commission (FERC)/Department of Energy (DOE) Technical Conference

Mr. Robb reported that he represented NERC at a recent joint FERC/DOE Technical Conference examining security investments for energy infrastructure. Topics included: (1) the role of mandatory Reliability Standards and the need for security investments beyond those measures required by the standards, including for infrastructure not addressed by the standards; (2) cost recovery for such investments; and (3) whether additional incentives for investments are needed, and if so, how those incentives should be designed. Mr. Robb reported that the technical conference also included discussion of the forthcoming GridEx and how to expand participation in the CRISP program.

Adjournment

There being no further business, and upon motion duly made and seconded, the meeting was adjourned.

Submitted by,



Charles A. Berardesco
Corporate Secretary

ERO Enterprise Information Technology Projects Update

Action

Review

Background

At the May 8, 2019 open meeting of the Technology and Security Committee, an update was provided on the ERO Information Technology (IT) Strategy. Additionally, updates were provided on the **Align** Project^[1] and the Centralized Organization Registration Entity System (**CORES**) project. Additionally, updates were given on IT solutions for the Electricity Information Sharing and Analysis Center (E-ISAC) and on the proposed 2020 IT budget and the budget forecast for 2021 and 2022.

Summary

Since the May meeting, additional configuration and testing work has been completed for the first release of **Align**. Based on user feedback, a number of refinements, clarifications, and enhancements have been identified and implemented to help ensure a successful launch of the system for self-reports, enforcement, and mitigation. A second change-readiness survey was conducted and our change agent network has been formed. Release 1 of **Align** remains scheduled to be delivered in Q4 of 2019 but the exact timing is still under evaluation.

There continues to be a strong focus on ensuring the security and protection of the **Align** application and related data. In addition to the implementation of multi-factor authentication (**MFA**) for client access to the **Align** solution (as well as many other online ERO Enterprise resources), additional work continues with the business to enhance ERO Enterprise policies, procedures and technology solutions to best manage these risks.

In addition, the new **CORES** system for entity registration was released on July 15. Development of the integrations necessary to exchange Entity Registration and Reliability Standards data between **Align** and **CORES** has progressed significantly and is on-track for completion, as planned.

Development of version 3 of the system for Situation Awareness for FERC, NERC and Regions (**SAFNR**) by ResilientGrid is underway. This investment will enable NERC to continue to undertake situational awareness activities consistent with Section 1000 of the Rules of Procedure. The new **SAFNR** solution should be available by the end of 2019. Highlights of the new version include:

- Greater levels of detail beyond the existing data set, as well as additional displays (such as hourly Balancing Authority (BA) actual load, BA forecasted load, BA net actual interchange, and Reliability Coordinator Status)

^[1] The **Align** Project (previously referred to as the CMEP Technology Project) is a strategic initiative designed to support the ERO Enterprise as it continues to evolve as a risk-informed regulator. It supports three ERO Enterprise goals: implementation of a risk-informed CMEP (Goal 2), reduction of known risks to reliability (Goal 3), and improving the efficiency and effectiveness of the ERO (Goal 6).

- Visualization of environmental conditions impacting reliability, such as weather and space weather
- Improved search capability to search for generators, substations and transmission lines by name or location

E-ISAC Portal user communities and portal security on **E-ISAC.com** continues to be focus areas for enhancement and development. In addition, the implementation of a new member engagement solution for the E-ISAC, using Salesforce, was approved. The project to implement Salesforce started on July 8, 2019.

The technology portion of the Florida Reliability Coordinating Council, Inc. dissolution was also completed on time in early July with a strong emphasis on data security and data quality.

NERC IT continues in its mission to deliver technology solutions supporting the effective and efficient use of resources for registered entities, the ERO Enterprise, and the E-ISAC.

E-ISAC Update

Action

Review

Background

Management will provide the Technology and Security Committee (Committee) with an update regarding the planning of the E-ISAC's biennial security exercise, GridEx V, and the E-ISAC's annual industry security conference, GridSecCon 2019.

In addition, management will provide the Committee with an overview of proposed 2020 performance metrics which were recently reviewed with the Member Executive Committee (MEC). The metrics are designed to align with the goals set forth in the E-ISAC's Long-Term Strategic Plan, and the key supporting activities. The metrics are expected to evolve over time as the E-ISAC's processes and data sources mature. The metrics are also expected to inform future updates to the key activities and goals in the Long-Term Strategic Plan. These metrics are subject to ongoing internal review and will take into consideration feedback received from the MEC, the Committee, and other stakeholders. Final recommended metrics will be presented to the MEC for endorsement at its October 2019 meeting and thereafter presented to this Committee and the Corporate Governance and Human Resources Committee for final endorsement and inclusion into the overall NERC metrics efforts.

A DIVISION OF NERC



E-ISAC

ELECTRICITY
INFORMATION SHARING AND ANALYSIS CENTER

E-ISAC Update

William Lawrence, Vice President and Chief Security Officer, Director of the E-ISAC

Technology and Security Committee Meeting

August 14, 2019

TLP:GREEN

RELIABILITY | RESILIENCE | SECURITY





- GridEx V Update
- GridSecCon Update
- 2020 Draft Performance Metrics
- Q&A



- The E-ISAC's 5th unclassified exercise designed to simulate a cyber/physical attack on electric and other critical infrastructures across North America
- Participants include:
 - Electric and gas utilities
 - Regional (local, state, provincial) and federal government agencies in law enforcement, first response, emergency management, and intelligence community functions
 - Critical infrastructure cross-sector partners (ISACs and natural gas transmission pipeline operators)
 - Supply chain stakeholder organizations



GridEx V
GRID SECURITY EXERCISE 2019





GRIDSEC CON 2019

NERC • SERC

- Co-hosted with SERC in Atlanta, GA, October 22-25, 2019
- Registration is open
- Training sessions will include SANS Institute “Netwars,” Dragos, physical security, risk assessment, and many others
- Panels will include:
 - “Advocating for Security” – Trade Association Panel
 - “Design Basis Threat Assessment” – Physical Security Panel
 - “When Cyber Incidents have Physical Impacts”
 - “Identifying OT Supply Chain Risks”
 - “Game-changing Research, Development, and Deployment”
 - “The Natural Gas-Electricity Security Nexus”



- Strategic Goals Recap
- 2019-20 Key Activities
- Proposed Metrics
 - Engagement
 - Information Sharing
 - Analysis
- Next Steps



Engagement

- A member-first culture sets the E-ISAC's direction while active two-way engagement and sharing groups increase value and leverage industry and cross-sector resources

Information Sharing

- Trusted relationships and technologies draw in and drive the flow and dissemination of high-value information across the electricity and interdependent sectors in a timely manner

Analysis

- Credible, reliable analytics turn member, cross-sector, third party, and government data into sector-specific insights and member action



Engagement

Build and enrich the value of E-ISAC membership

Strengthen trusted-source partner relationships

Enhance engagement with Canada

Evolve the GridEx program

Information Sharing

Strengthen Portal features and capabilities

Increase information sharing by trusted-source partners and industry

Improve value added actionable information sharing with industry

24x7 Watch operations

Analysis

Hire, develop, and retain highly qualified staff

Leverage technology to enhance capabilities

Develop new data source, analytical tools and capabilities

Strengthen analytical capabilities through strategic partnerships



Goal

- Build and enrich the value of E-ISAC membership
- Strengthen trusted-source partner relationships

Metric

1. % increase in prospective member organizations engaged
2. % of prospective member organizations that become an E-ISAC member
3. Frequency of member user interactions by channel (e.g. Portal downloads, website visits)
4. Elapsed time since last member interaction (e.g. share or contact)
5. % increase in diversity of types of member organizations participating in Industry Engagement Program and E-ISAC led workshops

Note: Metrics for trusted source partnerships to be considered in future



Goal

- Increase information sharing by trusted-source partners and industry
- Improve value-added, actionable information sharing with industry

Metric

1. % increase in number of portal posts by member organizations
2. % increase in number of shares by source (channel, event type)
3. % increase in unique value-add information received from trusted partners
4. Comparability of member organization information sharing within predefined peer groups



Goal

- Develop new data sources, analytical tools and capabilities
- Strengthen analytical capabilities through strategic partnerships

Metric

1. % increase of content enriched by E-ISAC analysts
2. Unclassified Threat Workshop content survey results (relevant, timely, unique, actionable)
3. % increase in joint analytical products with strategic partners

- Finalize 2020 metrics, including development of metric targets where baseline historic data is available
- Member Executive Committee review and endorsement at October meeting
- Review with CGHRC and TSC at November meeting
- 2019 supporting activities
 - Gathering baseline data
 - Implementing customer relationship management tool
 - Identifying new data sources
 - Developing targeted activities and products to increase member and partner interaction
 - Strengthen watch and analytical resources



Metrics for Other Key Engagement, Information Sharing and Analysis Activities



Engagement

Build and enrich the value of E-ISAC membership

Strengthen trusted-source partner relationships

Enhance engagement with Canada

Evolve the GridEx program

Information Sharing

Strengthen Portal features and capabilities

Increase information sharing by trusted-source partners and industry

Improve value added actionable information sharing with industry

24x7 Watch operations

Analysis

Hire, develop, and retain highly qualified staff

Leverage technology to enhance capabilities

Develop new data source, analytical tools and capabilities

Strengthen analytical capabilities through strategic partnerships



Goal

- Enhance engagement with Canada
- Evolve the GridEx program

Metric

1. % increase in Canadian member organizations
2. Canadian Electricity Association support of 2020 budget
3. % increase in GridEx participation
4. % increase in cross-sector participation in GridEx
5. % increase in state government participation in GridEx



Goal

- Strengthen Portal features and capabilities
- 24x7 Watch operations

Metric

1. % increase in targeted feedback from members and partners
2. Implementation of Portal enhancements per approved project plan
3. Watch coverage/staffing metrics under development



Goal

- Hire, develop, and retain highly qualified staff
- Leverage technologies to enhance capabilities

Metric

1. Employee retention/attrition rates
2. Employee survey feedback
3. Quality and usefulness of CRM tool and data- actual results compared to business case assumptions
4. Data platform project implementation variance from plan

A stylized map of North America, including the United States, southern Canada, and northern Mexico. The map is rendered in shades of blue and grey. A solid blue horizontal band crosses the middle of the map, serving as a background for the title text.

Questions and Answers