

Agenda

Technology and Security Committee

August 19, 2020 | 12:45-1:45 p.m. Eastern
Conference Call

Attendee Webex: [Join Meeting](#)

Introduction and Chair's Remarks

NERC Antitrust Compliance Guidelines*

Agenda Items

1. **Minutes*— Approve**
 - a. May 13, 2020 Meeting
2. **E-ISAC Update***
 - a. E-ISAC Operations – **Review**
 - b. E-ISAC Long-Term Strategic Plan – **Review and Recommend Board of Trustee Acceptance**
3. **ERO Enterprise Business Technology Projects*— Update**
4. **ERO Enterprise Align Project*— Update**
5. **ERO Enterprise Secure Evidence Locker* — Update**
6. **Other Business and 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 13, 2020 | 12:30-1:30 p.m. Eastern
Conference Call

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 13, 2020, at 12:30 p.m. Eastern, and a quorum was declared present. The agenda is attached as **Exhibit A**.

Present at the meeting were:

Committee Members

Suzanne Keenan, Chair
Kenneth W. DeFontes
Robin E. Manning
Jan Schori
Roy Thilly, *ex officio*

Board Members

Robert G. Clarke
George S. Hawkins
Jim Piro
James B. Robb, NERC President and Chief Executive Officer
Colleen Sidford

NERC Staff

Tina Buzzard, Assistant Corporate Secretary
Manny Cancel, Senior Vice President and Chief Executive Officer of the E-ISAC
Shamai Elstein, Assistant General Counsel
Howard Gugel, Vice President, Engineering and Standards
Stan Hoptroff, Vice President, Business Technology
Mark Lauby, Senior Vice President and Chief Engineer
Bill Lawrence, Vice President, ERO Enterprise Security Initiatives
Sônia Mendonça, Senior Vice President, General Counsel, and Corporate Secretary
Janet Sena, Senior Vice President, External Affairs
Andy Sharp, Vice President and Interim Chief Financial Officer
Mechelle Thomas, Vice President, Compliance

Chair’s Remarks

Ms. Keenan welcomed the Committee members and highlighted recent Committee activities. She reflected on the Align project, noted the completion and results of the Committee’s self-assessment survey, and thanked the ERO Enterprise for their hard work amid COVID-19.

NERC Antitrust Compliance Guidelines

Ms. Buzzard 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 Ms. Mendonça.

Minutes

Upon motion duly made and seconded, the Committee approved the minutes of the February 5, 2020 meeting as presented at the meeting.

E-ISAC Update

Mr. Cancel provided an overview of the E-ISAC's response to COVID-19. He thanked the NERC IT team for their work, and highlighted enhanced engagement with the Department of Energy.

Mr. Cancel reviewed the E-ISAC's long-term strategic plan, referencing the materials included in the advance agenda package. He described the E-ISAC's focus areas, including: (1) timely and actionable information; (2) analysis regarding security threats and mitigation strategies; (3) improved collaboration with industry, U.S. and Canadian government partners, and other stakeholders; and (4) continuous improvement and alignment across the E-ISAC's three strategic pillars (engagement, information sharing, and analysis). Mr. Cancel reviewed the near-term and long-term focus areas for the E-ISAC.

Mr. Sharp provided an overview of the preliminary 2021 E-ISAC budget, referencing the materials included in the advance agenda package. He noted that the E-ISAC is projected to be on budget in 2020, and that the E-ISAC is below the prior projection for 2021.

ERO Enterprise Business Technology Projects Update

Mr. Hoptroff provided an update on the ERO Enterprise business technology projects, referencing the materials included in the advance agenda package. He provided an update on: (1) the Centralized Organization Registration ERO System ("CORES"); (2) the Geomagnetic Disturbance (GMD) application; and (3) the Microsoft TEAMS Collaboration Platform. Mr. Hoptroff also reviewed the E-ISAC technology projects, including: (1) the Salesforce customer relationship management (CRM); (2) the E-ISAC Portal; and (3) the Data Analysis Platform.

ERO Enterprise Align Project

Mr. Hoptroff provided an update on the ERO Enterprise Align project. He highlighted: (1) the benefits of Align; (2) upcoming milestones; (3) the current status of the Align project; and (4) the Align release 2 and release 3 functionality.

Establishment of the ERO Enterprise Secure Evidence Locker

Mr. Hoptroff presented on the proposed establishment of the ERO Secure Evidence Locker (ERO SEL). He emphasized how the ERO SEL would support the secure transfer, management, retention, and destruction of sensitive registered entity files used in Compliance Monitoring and Enforcement Program (CMEP) activities. Upon motion duly made and seconded, the Committee recommended the establishment of the ERO SEL to the Finance and Audit Committee.

Adjournment

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

Submitted by,



Sônia Mendonça
Corporate Secretary

E-ISAC Update

Action

Review and recommend the E-ISAC Long-Term Strategic Plan for Board of Trustees (Board) acceptance.

Background

The objective of this agenda item is to (1) provide a brief update regarding E-ISAC operations, and (2) request that the Technology and Security (Committee) recommend that the Board accept the proposed updates to the E-ISAC Long-Term Strategic Plan (Strategic Plan).

E-ISAC Operations

During the meeting, management will provide the Committee an update on E-ISAC operations, including updates on E-ISAC activities related to COVID-19, the cyber and physical security threat landscape, the move to 24/7 operations, and member and partner engagement.

E-ISAC Long-Term Strategic Plan

As discussed at the Committee's May 2020 conference call, the E-ISAC took the opportunity to assess the Strategic Plan, initially developed in 2017, to confirm the E-ISAC's strategic and operational focus, evaluate and refine its products and services, optimize resource planning, and identify additional areas to provide value to members.

The E-ISAC worked with the Electricity Subsector Coordinating Council's (ESCC) Member Executive Committee (MEC) to update the Strategic Plan. The MEC endorsed the updated Strategic Plan during its conference call on July 21, 2020.

The revised draft of the Strategic Plan is included in the read-ahead material for the Committee's August 19, 2020 meeting. The E-ISAC has not substantively modified the strategic and operational focus areas and objectives from the draft Strategic Plan presented for the Committee reviewed at its May 13, 2020 meeting.

For the near-term (1-2 years), the E-ISAC's primary focus will be improving the effectiveness and efficiency of current products, platforms, and services. The E-ISAC will also sharpen its focus and execution in building and maintaining membership by demonstrating value through improved analysis, timely sharing of actionable information, and collaboration with key government and strategic partners, while also ensuring that E-ISAC operations are both effective and efficient. The E-ISAC is also actively working on enhancing its feedback mechanisms to help ensure it continues to be responsive to member needs and understands which of its products and services provide value to its members.

For the long-term horizon (3-5 years), the E-ISAC will focus on providing additional value to members and other stakeholders in four key areas:

1. Enhancing its analytical capabilities (both internal and in partnership with third parties);
2. Identifying, analyzing, and sharing operational technology risks and risk mitigation strategies;
3. Developing enhanced capabilities to share critical threat and intelligence information to provide timely and actionable information to the sector; and
4. Extending E-ISAC services and capabilities to support the downstream natural gas sector, given cross-sector interdependencies.

While there have been no significant changes to the draft Strategic Plan presented to the Committee in May, the revised draft includes refinements to:

- Further recognize the E-ISAC's role and value in supporting both the ESCC and key government agencies;
- Acknowledge member service needs vary and the importance of ongoing stakeholder guidance;
- Clarify intelligence role as leveraging government and private sector threat and intelligence information; and
- Highlight considerations for evaluating extending services to the downstream natural gas sector.

Management requests that the Committee review and recommend that the Board accept the Strategic Plan at its August 20, 2020 meeting.



E-ISAC
ELECTRICITY
INFORMATION SHARING AND ANALYSIS CENTER

E-ISAC Long-Term Strategic Plan Update

July 2020

RESILIENCY | RELIABILITY | SECURITY



1325 G Street NW
Suite 600
Washington, DC 20005
202-790-6000 | www.eisac.com

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Executive Summary

July 2020

Background

The Electricity Information Sharing and Analysis Center's (E-ISAC) Long-Term Strategic Plan has three primary focus areas—Engagement, Information Sharing, and Analysis—and embraces the following ongoing needs: review priorities under each focus area, ensure alignment between priorities, optimize resource allocation, and establish metrics to measure progress.

In 2019, the E-ISAC took steps to improve the efficiency of operations and reduce or eliminate certain lower-value activities. The E-ISAC strengthened its leadership and security operations and reorganized to align and optimize cyber and physical security teams as part of an integrated watch operations team. The E-ISAC also reorganized and enhanced its Portal posting and other publications to provide greater context and more information that is actionable. In addition, it created a performance management group to oversee the implementation of process improvements, technology, and metrics to improve the quality, timeliness, and value of information sharing, data management, and analysis.¹

Near-Term Focus (2020–2021)

The E-ISAC's primary focus will be to improve the effectiveness and efficiency of current products, platforms, and services.² The E-ISAC will also sharpen its focus and execution regarding building and maintaining membership by demonstrating value through improved analysis, timely sharing of actionable information, collaboration with key government and strategic partners, and ensuring that E-ISAC operations are both effective and efficient.

The E-ISAC will adopt the following practices to guide resource allocation and investments while ensuring alignment with the three primary focus areas under the Strategic Plan: resource allocation and investment, engagement, and information sharing and analysis.

Longer-Term Focus (three to five years)

The E-ISAC will focus on providing additional value to members and other stakeholders in the following four key areas:

- Enhance the E-ISAC's analytical capabilities with both internal and partnership with third parties while ensuring these enhancements provide value to E-ISAC's members
- Work closely with the MEC working group, government, and industry partners to identify and share operational technology risks and risk mitigation strategies
- Enhance the E-ISAC's capability to better leverage classified and other critical threat and intelligence information (both nonpublic governmental and private sector) to provide timely and actionable information to the sector regarding security risks

¹ The E-ISAC's 2020 performance metrics are included as Attachment A.

² Attachment 2 is a listing of current E-ISAC products and services.

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- Conduct a detailed evaluation of the benefits, costs, governance and funding issues, and options that extend E-ISAC services and capabilities to support the downstream natural gas sector given cross-sector interdependencies

The E-ISAC will also continue to evaluate partnership opportunities with the commercial sector, other ISACs, and government-sponsored research and development organizations. The E-ISAC will also work closely with stakeholders and government partners to carefully evaluate the benefits, resource requirements, and potential challenges and risks associated with each of these initiatives. Finally, the E-ISAC will formulate appropriate program activities, budgets, and schedules through transparent resource planning and budget approval processes.

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E-ISAC Long-Term Strategic Plan Update

July 2020

Background

The Information Sharing and Analysis Center (ISAC) construct was authorized by a U.S. presidential directive issued in 1998 and is focused on engagement, information sharing, and analysis directly related to the protection of critical infrastructure. Due to a 1999 request by the U.S. secretary of energy that the North American Electric Reliability Corporation (NERC) serve as the ISAC for the electricity sector, NERC formed the E-ISAC.³ The E-ISAC's fundamental purpose and mission is to support its members and other stakeholders to reduce cyber and physical security risk through quality analysis and timely sharing of actionable electricity industry security information.

The E-ISAC operates as a separate department within NERC. Electric load-serving entities fund the E-ISAC's operations and budget through payments to NERC for its annual assessments in North America. Participants in the Cybersecurity Risk Information Sharing Program (CRISP) support the program through separate contractual funding. The U.S. DOE developed CRISP, and the E-ISAC manages it.⁴

NERC's senior vice president and chief executive officer (CEO) of the E-ISAC is responsible for the day-to-day management of the E-ISAC. The Member Executive Committee (MEC) of the Electricity Subsector Coordinating Council (ESCC)⁵ provides industry leadership to guide and support the E-ISAC, including strategy development and operational guidance. Current MEC membership includes executives from North American investor-owned, public power, and cooperative utilities. Members must be CEO-level executives, security executives, or subject matter experts employed or sponsored by an E-ISAC member organization. The NERC CEO is also a standing member of the MEC. NERC's Board of Trustees, through its Technology and Security Committee, provides corporate oversight of the E-ISAC, giving due consideration to MEC recommendations. This governance helps ensure that the E-ISAC remains focused on both the needs of its members and supporting NERC's role as the Electric Reliability Organization.

Development of Strategic Plan: Primary Focus Areas and Supporting Activities

In 2017, the E-ISAC—with guidance from the MEC, the NERC Board of Trustees (NERC Board), and various trade associations and stakeholder groups—developed a Strategic Plan to better define its mission and focus its resources towards helping to protect the electricity industry from escalating cyber and physical security risks. The Strategic Plan has three primary areas of focus: Engagement, Information Sharing, and Analysis. The Strategic Plan embraces the ongoing need to review priorities under each focus area, ensure alignment between priorities, optimize resource allocation, and establish metrics to measure progress. The

³ NERC was designated by the Federal Energy Regulatory Commission as the Electric Reliability Organization under Section 215 of the Federal Power Act.

⁴ Fees from security conferences and training events also provide additional, less significant sources of funding.

⁵ The CEO-led ESCC serves as the principal liaison between the federal government and the electric power industry, with the mission of coordinating efforts to prepare for and respond to national-level disasters or threats to critical infrastructure. The ESCC focuses on actions and strategies that help protect the energy grid, prevent various threats from disrupting electricity service, and develop capabilities that help the sector quickly respond and recover when major incidents impact the grid.

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central underpinning of the Strategic Plan is for the E-ISAC to focus on providing timely and actionable information and analysis to industry regarding cyber and physical security threats and mitigation strategies; to advance this important objective, the Strategic Plan recognizes the critical interdependencies between the E-ISAC, industry, U.S. and Canadian government agencies, and other stakeholders.

The primary activities under each of the Strategic Plan focus areas are as follows:

Engagement

- Building and enriching the value of E-ISAC membership
- Strengthening trusted source relationships in both the private sector and government
- Enhancing engagement within the electricity industry in both the United States and Canada
- Continuing to improve and mature security exercises by expanding and increasing the diversity of participation, developing and refining scenarios to provide meaningful and practical learning opportunities

Information Sharing

- Increasing the quality and volume of information shared with E-ISAC from industry, government partners, and trusted third parties (including information from classified sources)
- Strengthening the E-ISAC's capabilities for information sharing
- Improving timeliness and actionable value of information shared from the E-ISAC to industry
- Implementing 24x7 watch operations that are effective, efficient, and responsive to member needs

Analysis

- Effective data collection and capture of new information sources
- Improving analytical tools and techniques
- Strengthening analytical capabilities through strategic relationships and hiring, developing, and retaining qualified staff

As part of managerial planning efforts for 2020–2021, management took feedback into account from the Board, MEC, members, and other stakeholders to assess progress to date, reconfirmed operating and strategic priorities, and identified both gaps and opportunities to further improve products and services and to provide greater value to members. The following is a summary of actions the E-ISAC will be undertaking to address these gaps and opportunities.

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Near-Term Focus (2020–2021)

The primary focus of the E-ISAC over the next two years will be improving the effectiveness and efficiency of current products, platforms, and services. The E-ISAC will also sharpen its focus and execution in building and maintaining membership by demonstrating value through improved analysis, timely sharing of actionable information, and collaboration with key government and strategic partners while ensuring that E-ISAC operations are both effective and efficient.

Key efforts will include the following:

- Demonstrating the value of information sharing by providing improved and more frequent information to E-ISAC members
- Engaging with both industry and government to ensure alignment on key priorities and supporting improvements to the effectiveness of E-ISAC products, services, and supporting platforms
- Focusing and reallocating resources to ensure proper support for these key priorities as appropriate

With these efforts in mind, the E-ISAC will adopt the following practices to guide resource allocation and investments while ensuring alignment with the three primary focus areas under the Strategic Plan:

- Fostering an inclusive, stable, productive, and effective work environment that attracts and maintains a diverse, talented, and action-oriented workforce
- Aggressively pursuing initiatives that increase operational effectiveness
- Prudently choosing resource intensive initiatives that expand the E-ISAC's scope and avoiding or deferring those that disperse the E-ISAC's focus
- Exploring opportunities to refine and increase the effectiveness and efficiency of operations⁶

With the support of industry, the MEC, and the NERC Board over the past two years, the E-ISAC has devoted considerable effort to improving the quality and value of analytical, engagement, management resources, and supporting systems to advance the objectives in the Strategic Plan. The National Infrastructure Advisory Council (NIAC) report emphasized that cyber and physical security threats that industry and other sectors are facing continue to escalate, threatening critical infrastructure, economic and government stability, and national security.⁷ It has never been more important for the E-ISAC to maintain its focus on its core activities and continue to produce products and services to provide stakeholders with content that helps improve or inform their security posture, encouraging them to share information in turn. Member and stakeholder participation, including information sharing and feedback on products and services, continue to be critical to the E-ISAC's success and electric system security, reliability, and resilience.

⁶ The E-ISAC has put in place performance metrics to help measure progress in achievement of Strategic Plan priorities. A copy of the current set of performance metrics is included as Attachment A. These metrics will continue to evolve and improve over time based on ongoing member feedback, actual results, and data availability.

⁷ NIAC, Transforming the U.S. Cyber Threat Partnership Final Report, December 2019.

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Over the next two years, the E-ISAC's primary focus will be on strengthening and building relationships across industry and government by demonstrating the value of products, services, and supporting platforms to increase information sharing and to help stakeholders reduce risk and improve their security posture.

Engagement

Successful implementation of the Strategic Plan requires that members know of E-ISAC products and capabilities and that they have opportunities to engage, interact, and provide input. Above all, members and stakeholders must recognize the value of information sharing and view the content, analysis, and context offered in E-ISAC products and services as instrumental pieces of the larger effort to reduce risk to the electricity industry.

The E-ISAC's engagement efforts will focus on communicating this value and encouraging the collaborative exchange of information, ideas, best practices, and insights related to understanding, remediating, and mitigating security risks. The E-ISAC focuses its engagement efforts on increasing industry participation and feedback regarding E-ISAC information sharing programs, capabilities, products, and services.

Areas of near-term focus for improvement of engagement activities include the following:

- **Expanding and Diversifying Membership:** Current membership represents 30% of NERC registered entities (covering approximately 80% of the electric meters in the United States) and 70% of Canada's electric utilities. Engagement efforts will focus on identifying, targeting, and engaging with underrepresented segments of the industry to ensure that all stakeholders, at varying sizes and geographic locations, are knowledgeable about the benefits of E-ISAC membership to reduce risk and improve their organizations' overall security posture.
- **Developing a More Formal Onboarding Process:** The E-ISAC is working on enhancing stakeholder onboarding processes and engagements through the development of a more mature onboarding process.
- **Leveraging the E-ISAC's Customer Relationship Management (CRM) Platform:** Fully implementing and maximizing the use of the E-ISAC's new CRM platform will increase and diversify membership and improve member services by obtaining and tracking member feedback, including through use of platform supported member surveys.
- **Explore Opportunities to Increase Efficiency of Security Exercises and Conferences:** The E-ISAC will explore opportunities to refine and increase the efficiency of supporting activities and resource allocations for GridEx and GridSecCon, both of which have experienced significant increases in participation and required increased resource support over the past four years. The E-ISAC will solicit competitive proposals for key activities supporting both GridEx and GridSecCon as well as evaluating partnering opportunities.

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Information Sharing⁸

Members voluntarily sharing security threat, vulnerability, and event/incident information is critical to achieving the goals in the Strategic Plan. Reliable and timely information sharing enables rich and highly contextual understanding of and the mitigation of security risks.

While members have made progress in increasing information sharing, considerable work remains, including reducing real and perceived barriers to information sharing. As of the end of 2019, the E-ISAC had over 1,200 active member organizations. However, only 10% of those organizations voluntarily shared information in 2019, and only 9 organizations provided more than 10 total unique shares last year. Investor-owned utilities provided over 65% of voluntary shares in the second half of 2019 with public power utilities providing the next most at just under 11%. The top 10 sharing organizations provided almost 50% of all shares. This reflects a very concentrated set of members that participate actively and regularly in voluntary information sharing. In 2019, the greatest sharing came almost exclusively from investor-owned utilities, 1 large public provincial Canadian utility with over 5,000 employees, and 1 Reliability Coordinator.

Willingness to share information varies across the industry, and barriers include the time and effort required to share information.⁹ Currently, if a member wants to share security information, they have several choices: they can login to the E-ISAC Portal and manually enter and submit a post; they can email a bulk incident log report to E-ISAC; or they can contact the E-ISAC support team via phone or email. See the following for findings on each:

- **Portal Reports:** members can complete these on a timely basis, but this requires manual and often duplicative data entry (i.e., the member's security team staff has already captured the information, often manually, in their own tracking systems and then have to re-enter the data in the E-ISAC system).
- **Bulk Incident Log Reports:** only a handful of members use this method for physical security incidents; it provides some efficiency, but this occurs on a weekly or monthly basis and assists in performing trending analyses.
- **Phone Calls and E-mails Reports:** these are inefficient and less frequent. In addition, many smaller organizations do not have the staff or technology to monitor and track this type of information in the first place, much less share it with E-ISAC.

The E-ISAC's near-term focus for improving information sharing includes enhancing the Portal to make it easier for members to share, manage, and find information; increasing the span, quality, and volume of voluntary shares from members; improving and expanding automated information sharing; and improving the security watch operations availability and capabilities.

⁸ Information sharing includes both information sharing by members and partners with the E-ISAC as well as sharing of information by the E-ISAC with members and partners. Both activities are closely aligned with and impact engagement and analysis activities.

⁹ Organizational culture may also impact willingness to engage in voluntarily sharing information with third parties regarding risks or vulnerability due to uncertainties regarding benefits, fear over potential impacts on the corporate reputation, regulatory/compliance risk, or perceptions of corporate, departmental, individual and managerial capability or performance.

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Enhancing the Information Sharing Portal

The E-ISAC will implement the following changes to the Portal:

- Driven by the 2019 MEC working group guidance, the E-ISAC will expand available structured information fields driven by sub-type events and incidents for both physical and cyber voluntary share postings.
- The E-ISAC will redesign information-sharing account groups into more granular and discernable options.
- Driven by efficiency, internal control needs, and leading ISAC best practices, the E-ISAC will implement a designated approving official (DAO) role for each member and partner organization. The DAO role will allow self-service management of an organization's Portal users and periodic certification of existing users and organization profile information.
- The E-ISAC will enhance member ability to manage and search information, including Portal postings.

Increasing the Span, Quality, and Volume of Voluntary Shares from Members

Voluntary and timely information sharing of quality information by members provides critical additional context as well as a more accurate view of real-time security incidents that are occurring within industry. This information directly enhances the E-ISAC's ability to provide more accurate information and trend analysis back to industry.

In 2019, members shared significantly more physical security information than previous years.¹⁰ Two key drivers of this success were increased engagement with individual members through an industry supported physical security analyst outreach program and the implementation of a bulk information sharing process. Bulk information sharing means sharing information about many incidents all at once with a method that reduces the sharing burden on individual members. This voluntary process tailors to the needs of individual members and can include sharing monthly summaries of incidents, transmission of security logs, or any other sharing method (e.g., email) that is beneficial for the member.

The E-ISAC also manages a Physical Security Advisory Group (PSAG)—a group of electric industry physical security subject matter experts that assist the E-ISAC in advising electricity industry participants and governmental agencies on threat mitigation strategies, incident prevention and response, training, emerging security technologies, and other relevant topics to enhance electric industry physical security and reliability. The E-ISAC's physical security team will work closely with PSAG to obtain their guidance in the development and refinement of physical security products, white papers, and services that bring value to the E-ISAC's members as well as ways to increase member physical security information sharing.

¹⁰ In 2019, following an aggressive push to increase physical security information sharing by directly reaching out to members, conducting analyst-to-analyst exchanges, and introducing the ability to share incidents in "bulk," physical secure incident sharing increased to 1384 incidents shared from 207 in 2018.

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The E-ISAC will also explore the creation of an industry-supported cyber security advisory group as a forum for engagement and collaboration regarding emerging cyber security risks, best practices, and feedback on E-ISAC cyber security related products and services as well as ways to increase member cyber security information sharing.¹¹ The E-ISAC will also work with the MEC working group and trade associations to continue to engage members in an effort to educate members regarding the benefits of information sharing and drive further increases in information sharing.

Improving and Expanding Automated Information Sharing

Steps to improve and expand automated information sharing will include the following:

- **Implementing an automated information sharing pilot program in 2020 for a limited set of willing and capable members for voluntary information sharing in a bidirectional fashion between external parties' applications and E-ISAC applications:** The pilot will explore the feasibility of creating bidirectional machine-to-machine data exchanges between E-ISAC and members. This will directly address the time-and-cost barrier to information sharing by reducing information sharing latency and eliminating duplicative data entry. The 2020 pilot approach is iterative, starting with a small set of participants and a practical set(s) of data to explore the costs/benefits and ongoing feasibility of possible expansion of the program in 2021.
- **Conducting a cost-benefit analysis of expanding the automated sharing to include additional types of data and information beyond that which is shared via voluntary information shares:** This may include raw network activity data (similar to CRISP) and/or new types of operational technology data and/or physical incident data. Note that this is only after sufficient due diligence accompanies the pragmatism of such an endeavor and if the lack of a sufficient alternative option(s) exist(s).
- **Where practical and cost-effective piloting and adopting various open source analysis support tools to achieve greater information gathering and analysis efficiency with a broader swath of staff:** These tools drive “smart” alerting and rapid information harvesting by placing automated, parameter-driven targeted searches into the hands of all E-ISAC analysts.

Maturing Security Watch Operations

To support E-ISAC information sharing and response capabilities, the E-ISAC recently established on-duty 24x5 watch operations and will be moving to 24x7 on-duty watch operations by no later than the third quarter of 2020. The Security Operations team is transforming towards a unified “team of teams” with common proactive and reactive goals, culture, and capabilities. It will achieve operational excellence through proactive, quality product delivery, and reactive around-the-clock incident-management services delivery. Security Operations also delivers a class of incident response communications and sharing, including All-Points Bulletins, Critical Broadcast Program calls, ESCC Playbook calls, and other government-sponsored and industry-supported incident response communications. While Security Watch Operations is

¹¹ This will including leveraging work undertaken by and participation in NERC's industry supported Critical Infrastructure Protection Committee and the more recently formed Reliability and Security Technical Committee.

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just one of several information sharing channels,¹² it plays an important role in communicating the value of E-ISAC membership and advancing voluntary information sharing by members.

Improving Government Collaboration and Access to Classified Information

The E-ISAC collaborates with the U.S. and Canadian intelligence agencies to do the following:

- Advocate for timely, actionable, and relevant threat information suitable for the electricity industry to help stakeholders mitigate risks
- Represent the electricity industry in both unclassified and classified analysis, discussions, and initiatives on physical and cyber threats to critical infrastructure
- Educate and provide awareness on the technical, business, and cultural aspects of the electricity industry to support governmental authorities and capabilities to both inform and protect industry

The E-ISAC's physical security team built new strategic relationships with the U.S. National Counterterrorism Center and the Royal Canadian Mounted Police, which culminated in both organizations providing briefings to members at GridSecCon 2019. The E-ISAC expects to deepen these relationships in the coming years, providing a valuable partnership and resource to enhance information sharing.

The E-ISAC recently entered into a memorandum of understanding with DOE. The primary objectives of this agreement are to do the following:

- Define the relationship between DOE and the E-ISAC as it relates to their respective roles in enhancing the electricity industry's efforts to prepare for and respond to cyber and physical security threats, vulnerabilities, and incidents
- Provide a general framework for cooperation between the parties regarding information sharing and analysis and cyber and physical security incident coordination and response
- Articulate expectations for the exchange of relevant information in a timely, reliable, and effective manner in response to cyber and physical security threats, vulnerabilities, and incidents

Management is working closely with the DOE to operationalize this memorandum of understanding, including defining deliverables, accountabilities, and schedules. The E-ISAC will also work closely with the ESCC, industry, and applicable government agencies to define how the E-ISAC can best support implementation of the recommendations of the NIAC and Cyber Solarium Commission as well as to support Pathfinder initiatives within the sector.

While the E-ISAC has established some collaboration with federal partners at the classified level, the E-ISAC must continue to expand its role in supporting classified information sharing between government and industry. As referenced in the recent NIAC and other national level reports, there is an increasing need for public-private partnerships and information sharing in classified as well as unclassified venues. In addition

¹² Other information sharing channels include voluntary and mandatory member/partner shares including news, bulletins, threat indicator sharing, other relevant, timely and useful data set sharing, finished reporting and bulk data sharing, a variety of government, industry and member briefings, exercises and conferences where information is shared through presentations, and other oral communications.

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to supporting the NIAC, Cyber Solarium, and Pathfinder initiatives, near-term and related E-ISAC activities involving classified arenas include working to do the following:

- Improve E-ISAC access to classified information and threat briefings to further develop and steer programs such as CRISP and E-ISAC threat information sharing to industry
- Increase meaningful classified threat briefings to industry
- Strengthen classified collaboration with DOE, DHS, and other government agencies to enhance sharing emerging security risks information with the electricity industry
- Provide electricity fundamentals training to government partners in both classified and unclassified settings to both educate and provide awareness of the electricity industry and related cyber and physical security issues with the goal of helping to better inform their threat and intelligence analysis

Analysis

Providing timely, actionable, and value-added analysis to members is critical to the E-ISAC's success. The E-ISAC uses four primary sources of information to accomplish this: information provided by CRISP participants,¹³ voluntary member shares, information from partners, and open-source information. E-ISAC staff takes all of these inputs, conducts filtering and analysis of this information, and produces information products, including bulletins (cyber or physical), documents (white papers, reports, etc.), filtered news, and filtered indicators-of-compromise lists. In addition, as part of the CRISP program, participating members receive unclassified briefings and reports, and the E-ISAC Portal provides anonymized information with members and trusted partners subject to the terms of confidentiality agreements. On a less frequent but often more critical basis, the E-ISAC also facilitates and/or participates in classified information discussions and exchanges of information involving appropriately cleared personnel across government and industry.

The E-ISAC's near-term analysis focus will be in the following four areas:

- **Increasing the Frequency of Valuable, In-depth Analysis:** This includes improving business processes, deploying technology to drive greater efficiency, and freeing up resources to support the development and sharing of more valuable analytical products. Leveraging additional quantitative data analysis techniques for identifying observed security patterns and trends across the industry is also important.
- **Improving the Quality and Timeliness of Reports:** The E-ISAC will focus on the quality, relevancy, and timeliness of information sharing in general as they apply to reporting (the right reporting on the right subjects with the right quality at the right times). The E-ISAC will drive progress through focus on the design and execution of supporting quality control processes, such as inbound and outbound product quality assessments.
- **Operationalizing Agreements:** The E-ISAC recently entered into collaboration agreements with the

¹³ The Pacific Northwest National Laboratory, within the strict confines of the CRISP structure where it is subject to detailed data handling and other contractual protections, analyzes information provided by CRISP participants. The E-ISAC has access to CRISP information for purposes of conducting its own analysis for the benefit of CRISP participants. The E-ISAC uses unclassified information derived from CRISP to conduct additional more board-based analysis of sector threats.

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Independent Electricity System Operator, the Multi-State ISAC (MS-ISAC), and the Downstream Natural Gas ISAC. The objectives of each of these agreements is to strengthen information sharing to further enhance analytical products that can be shared with each of these organizations, their members, and other trusted stakeholders. The parties to operationalize the objectives contained in these agreements have designated lead representatives. The principles behind this focus on communication, mutual commitment to defined goals, and shared principles governing dissemination of threat information. The E-ISAC has developed monthly plans that identify key activities and milestones associated with each of the major undertakings. Each month, the E-ISAC reviews these plans and at least annually will conduct an overall evaluation of the progress achieved in connection with each collaboration agreement. Management will also explore similar collaboration initiatives with other strategic partners after assessing the potential benefits and supporting resource requirements.

- **Expanding CRISP Participation and Driving CRISP Data Enrichment and Analysis:** Participation in CRISP has grown significantly in partnership with DOE, which continues to provide significant institutional and financial support for the program, including specific initiatives directed at increasing participation. The E-ISAC is also supporting initiatives to streamline program governance and drive greater program value through data enrichment and analysis. An operational technology pilot is in the evaluation and planning stages; the objective of this pilot is to explore the ability to view and analyze security risks associated operational and control systems technologies and advance participant and stakeholder understanding of the threat landscape facing the utility industry. Additionally, CRISP is in the midst of a Syslog pilot that focuses on collecting and analyzing two new data types to the program: email headers and inbound secure socket layer data. Both of these datasets inform more robust analysis of CRISP data in general and provide insight into anomalous and/or malicious activity affecting the CRISP community. The Syslog pilot will enter operations in 2021. Finally, CRISP is exploring new data collection capabilities through both hardware and software and will begin piloting these in 2021.

In addition, while all registered users of the E-ISAC Portal have access to postings of unclassified information derived from CRISP, there are practical financial and administrative limitations on the ability of smaller utilities to participate directly given the current cost and complexity of the program. The E-ISAC is working with trade associations—the American Public Power Association and National Rural Cooperative Association—and DOE to explore ways to further leverage CRISP and/or similar technologies to benefit small public power companies.

Many municipal and public power utilities outsource their security operations to the MS-ISAC, which is funded by the Department of Homeland Security and attractive to public power organizations with smaller security monitoring budgets. The MS-ISAC offers a sensor program through which it collects and analyzes network security risks for these smaller participating utilities. The E-ISAC is working with the MS-ISAC to explore opportunities to leverage this sensor information further with other E-ISAC data sources, including CRISP, to allow the MS-ISAC to enhance the services provided to these smaller government owned utilities. The success of the E-ISAC's analysis objectives and related strategic partnership initiatives is closely tied to the development and deployment of technology to leverage data and information sharing with these

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entities. This is particularly true with respect to improving and expanding data analytics and associated threat activity insights by combining data from these entities with other available data sources. As noted above, the planned CRISP operating technology pilot will focus on assessing the viability of looking across information and operating technology data to better identify anomalous and malicious activity that affects electricity subsector industry control systems. From a technology perspective, E-ISAC staff is implementing a new data platform. This data platform will increase the speed by which E-ISAC analysts can access, correlate, analyze, and visualize information from across many different data sources, such as open source information, voluntary shares, case tickets, new partner data, and the CRISP data sets. The E-ISAC operations team will use these capabilities to provide more targeted, timely, and enriched information to members. In addition, as mentioned, an automated information sharing pilot is scheduled for 2020 and is aimed at reducing one of the information sharing barriers (cost and time to share) by eliminating redundant data entry and reducing data latency for those that chose to participate. This will facilitate increased member information sharing and security awareness among Portal information sharing groups as well as serve as input into E-ISAC analytical products. The E-ISAC will also leverage enhanced case management and workflow to increase the effectiveness of timely and quality production of information products for the E-ISAC's members. Finally, the E-ISAC will use its CRM system to better track, target, and provide more meaningful and consistent interaction and messaging with E-ISAC partners and members. All of these initiatives will enhance the E-ISAC's ability to provide better service to its members.

Longer-Term Strategic and Resource Planning Consideration (3–5 Years)

As the E-ISAC looks at the longer-term time horizon, it is considering several initiatives to provide additional value to its members and other stakeholders, including the following:

- Enhancing the E-ISAC's analytical capabilities, both internal and in partnership with third parties, while ensuring these enhancements provide value to E-ISAC members
- Working closely with the MEC working group, government, and industry partners to identify and share operational technology risks and risk mitigation strategies
- Enhancing the E-ISAC's capability to better leverage classified and other critical threat and intelligence information (both nonpublic governmental and private sector) to provide timely and actionable information to the sector regarding security risks
- Conducting a detailed evaluation of the benefits, costs, governance and funding issues, and options extending E-ISAC services and capabilities to support the downstream natural gas sector, given cross-sector interdependencies

In addition, the E-ISAC will continue to evaluate partnership opportunities with the commercial sector, other ISACs, and government sponsored research and development organizations. The E-ISAC will also work closely with stakeholders and government partners to carefully evaluate the benefits, resource requirements, and potential challenges and risks associated with each of these initiatives as well as in the formulation of appropriate program activities, budgets, and schedules through transparent resource planning and budget approval processes.

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2020 Performance Metrics		
Engagement		
Percent increase in prospective member organizations engaged	Percent increase in diversity of types of member organizations participating in Industry Engagement Program and E-ISAC led workshops	Percent increase in cross-sector participation in GridEx
Percent increase in prospective member organizations that sign up to use the E-ISAC portal.	Percent increase in Canadian member organizations	Percent increase in state government participation in GridEx
Frequency of member user interactions by channel	Canadian Electricity Association support of 2021 budget	Quality and usefulness of CRM tool and data: actual results compared to business case assumptions
Elapsed time since last member interaction (e.g., share or contact)	Percent increase in GridEx participation	
Analysis		
Percent increase of content enriched by E-ISAC analysts	Percent increase in joint analytical products with partners	E-ISAC Data Platform project implementation variance from plan
Unclassified Threat Workshop content survey results (relevant, timely, unique, actionable)		
Information Sharing		
Member Portal Sharing: Percent increase in number of portal posts by member organizations	Member Information Sharing: Volume of member organization information sharing within predefined peer groups	Implementation of Portal Enhancements Per Approved Project Plan
Total Information Shares: Percent increase in number of information shares by source, channel, and event type	Member Information Sharing: Percent increase in quality and unique value-add information received from member organizations	Security Watch Operations Coverage: <ul style="list-style-type: none"> • On Duty: Core Hours Head Count • On Call: Off Hours Head Count • On Duty: Off Hours Head Count
Partner Information Sharing: Percent increase in volume of information shares received from partner organizations Percent increase in quality of information shares received from partner organizations	Percent Increase in Targeted Feedback from Members and Partners	Security Watch Operations Sharing: Indicators of compromise (IOC) loaded into external sharing platform
Staffing and Attrition		
Annual employee attrition rate	Total staff and period over period net change	

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Attachment 2 List of Products and Services

Products	Description	Audience
Monthly Report	A high-level, summary report that includes monthly trends and analysis that industry members can use to help inform products for industry leadership	All asset owner and operator (AOO) members
Annual Report	An executive-level overview of E-ISAC accomplishments and future trends covering a range of security topics and E-ISAC programs	AOO senior management and CEOs
E-ISAC Brochure	A high-level overview of the E-ISAC offerings and the benefits of becoming a member of the E-ISAC	Prospective or new members and partners
White Papers (Xenotime, Ukraine, Ransomware)	A deep dive analysis into significant or highly publicized events and trends in the industry	AOO cyber and physical analysts
Bulletins, Portal Postings, and Notifications	Timely, informative portal postings relaying information on cyber or physical events as well as national events/comments on media coverage of issues pertaining to the industry	AOO cyber and physical analysts
Services (Workshops, Webinars, Working Groups, Platforms, Conferences, and Exercises)	Description	Audience
Portal	Provides a central repository for the bidirectional sharing of information between E-ISAC members, partners, and staff	All members and partners with Portal access
Cyber Automated Information Sharing System (CAISS)—IOC feeds	Provides participating members with a daily, automated feed of indicators of compromise based on the STIX/TAXII protocol	Participating AOO members
CAISS—threat platform community	Provides participating members with the ability to share and collaborate on cyber security items via a common third party tool	Participating AOO members

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Services (Workshops, Webinars, Working Groups, Platforms, Conferences, and Exercises)	Description	Audience
Monthly Briefing Series (Webinar)	A monthly webinar hosted by the E-ISAC featuring cyber and physical security updates as well as news and trends from partners, including government and cross-sector partners; recordings are posted to the Portal and content is incorporated into the Monthly Report	All AOO members
GridSecCon	Annual conference cohosted by NERC, the E-ISAC, and a rotation of NERC Regional Entities; this brings together cyber and physical security experts from industry and government to share emerging security trends, policy advancements, training, and lessons learned	All members and partners
GridEx	Held every other year, to exercise utilities' crisis response and recovery procedures, improve information sharing during a crisis, gather lessons learned, and engage senior leadership	All members and partners
Cybersecurity Risk Information Sharing Program (CRISP)	CRISP leverages all-source cyber threat intelligence and government-informed reporting to detect threats to North American electricity companies. CRISP is a private-public collaboration coordinated by the E-ISAC between the U.S. DOE and North America's electricity industry. All E-ISAC members benefit from the information gathered regardless of CRISP membership status.	CRISP members
CRISP Workshops	The E-ISAC hosts CRISP workshops twice a year for CRISP participants to discuss threats and to provide an opportunity for participants to network, collaborate, and gain a thorough understanding of the program and identify key areas of enhancements to capabilities from a technical and analytical perspective. This includes a classified briefing for cleared participants.	CRISP members
Industry Engagement Program	A three-day program for small groups of industry analysts to gather at the E-ISAC D.C. office to increase awareness of E-ISAC capabilities,	Open to industry members, with a focus on analysts or those

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Services (Workshops, Webinars, Working Groups, Platforms, Conferences, and Exercises)	Description	Audience
	products, and services and to share best practices and lessons learned with industry colleagues	with information sharing responsibilities
Threat Workshops (Unclassified)	An unclassified workshop hosted by the E-ISAC, focused on facilitating dialogue between industry members and government security specialists about specific grid cyber and physical threats	AOO cyber and physical analysts
Vulnerability of Integrated Security Analysis (VISA) Implementation Workshop	Designed to teach participants how to use the VISA methodology to enhance the physical security of assets	AOO security personnel and analysts
Electricity Subsector Coordinating Council Working Groups	Support and provide subject matter expertise and leadership to help inform ESCC working groups and activities. This includes participation and coordination on ESCC meetings, ESCC working groups, Senior Executive Working Group, weekly government-industry call, and the MEC.	AOO executives and CEOs
Government and Cross-Sector Coordination	Support and provide leadership and technical expertise on security and resilience for government and cross-sector efforts. This includes participation and coordination with the National Council of ISACs, the leading critical infrastructure cross sector community as well as management of international, federal, state, provincial, and local government partners.	All members and partners
Physical Security Advisory Group (PSAG)	An E-ISAC led group that provides expertise to advise the industry on the threat mitigation strategy to enhance physical security and reliability. The group is comprised of over 20 physical security leaders from across industry security, government, and other partners.	AOO physical security members
Critical Broadcast Program	E-ISAC facilitated call to rapidly convene large groups of industry members to share information about imminent/emerging security issues that would operationally or otherwise impact industry.	All AOO members, especially managers and executives

ERO Enterprise Business Technology Projects

Action

Update

Background

During the May 13, 2020 Technology and Security Committee (TSC) meeting, NERC provided an update on several ERO Business Technology topics, including:

- The status of the November release of the Centralized Organization Registration ERO System, the consolidated entity registration system enhancement
- The status of version 3 of the Situation Awareness for FERC, NERC and the Regional Entities
- Geomagnetic Disturbance Data (GMD)System
- The status of technology projects for the Electricity Information Sharing and Analysis Center (E-ISAC), including the Salesforce customer relationship management tool, the E-ISAC Portal, and the E-ISAC Data Analysis Platform.

Summary

NERC Information Technology continues in its mission to deliver technology solutions supporting an effective and efficient use of resources for registered entities and across the ERO Enterprise.

Since the May meeting, NERC has made continued progress in the development of the GMD System, the implementation of Microsoft Teams for NERC and the ERO Enterprise, refinement of the E-ISAC's adoption of Salesforce, and the introduction of the E-ISAC's Data Analysis Platform.

ERO Enterprise Align Project

Action Update

Background

At its May 2020 Technology and Security Committee (TSC) meeting, NERC provided an update on the status of the Align Project. Since the May meeting, NERC has continued advancing the project, including the development of a robust change management process for the deployment of the Align solution focused on the unique needs of registered entities, Regional Entities and NERC. Specifics of the change management program include user acceptance testing, training, solution governance and communications.

The NERC Board of Trustees also approved an additional investment of \$1.8M to complete Align in 2021 in conjunction with ERO Secure Evidence Locker (ERO SEL).

The Align tool, together with the ERO SEL, will provide the ERO Enterprise with a secure, effective, and harmonized platform with which to execute its CMEP responsibilities. These new tools will allow the retirement of existing legacy systems in use at NERC and the Regional Entities, and substantially increase the security of registered entity data and ERO Enterprise work products. Further, it will enable better oversight of Regional Entity processes, improve the quality and security of reporting, and provide substantial registered entity convenience with the integration to the Align tool (but not to the ERO SEL) of the Centralized Organization Registration ERO System registry and the standards repository.

ERO Enterprise Secure Evidence Locker

Action

Update

Background

On its May 2020 conference call, the Technology and Security Committee (TSC) recommended that the Finance and Audit Committee (FAC) approve the investment in the ERO Enterprise Secure Evidence Locker (ERO SEL). Thereafter, the FAC recommended that the NERC Board of Trustees (Board) approve the investment in the ERO SEL. Based on these recommendations and after receiving policy input from the Member Representatives Committee, the Board approved the investment at its May 2020 meeting. On June 22, 2020, the Federal Energy Regulatory Commission approved NERC's request to fund the development of the ERO SEL.

The ERO SEL will support the secure transfer, management, retention, and destruction of sensitive registered entity files used in Compliance Monitoring and Enforcement Program (CMEP) activities. It will complement the development of the Align tool, which is a work and data management system that the ERO Enterprise will use to manage all ERO Enterprise-developed work products used in CMEP activities. Collectively, the Align tool and the ERO SEL will provide a platform to enable harmonization of Regional Entity practices driving to a common registered entity experience while facilitating the secure submission, review, and retention of evidence generated during CMEP activities.

With the ERO SEL, all evidence provided by a registered entity would be required to be placed into either an ERO SEL or a registered entity locker that meets certain security criteria, unless prohibited by a Reliability Standard.¹ ERO Enterprise CMEP personnel would be able to view and analyze the evidence to perform their CMEP responsibilities.

Developing and implementing the ERO SEL will harmonize the evidence collection processes across the ERO Enterprise and establish the "gold standard" for security in this area. The ERO SEL would be hosted at NERC and designed as a stand-alone system. It will have no integration or network connection with the Align tool to increase security of both tools. Additionally, the proposed ERO SEL architecture and operational model will adhere to the National Institute of Standards and Technology 800-171 security control framework, established to protect Controlled Unclassified Information (CUI) in non-federal systems, wherein Critical Energy Infrastructure Information is classified as CUI.

The ERO SEL is designed to reduce the risk of evidence loss and exposure. It will have the following functionality and security:

- Enable submission by authorized and rigorously authenticated registered entity users;

¹ While the ERO will build and maintain the ERO SEL, registered entities may build, at their discretion, their own secure evidence lockers as long as they meet specified requirements for ERO Enterprise personnel access and data manipulation for analysis.

- Provide compartmentalized analysis of evidence in temporary, isolated, and disposable environments;
- Prohibit interfaces with any other systems, including the Align tool;
- Encrypt immediately upon submission;
- Isolate submissions per entity;
- Prohibit extraction and backups; and,
- Prescribe proactive and disciplined destruction policies.

NERC's use of virtualization technologies in the ERO SEL provides for an abstraction layer between server hardware and specialized-use servers resulting in a one-to-many capability between hardware and server. This is an efficient and secure approach that meets the needs of the ERO SEL. Specifically, the design in conjunction with logical access controls implemented on the specialized-use servers allows the Regional Entities to control their portion of the ERO SEL while NERC would perform the administrative functions.

NERC Information Technology and the Project Management Office engaged Presidio—a long standing NERC vendor—to serve as a “general contractor” to design, build, implement, and service/maintain the ERO SEL. NERC is looking to complete this project and bring the ERO SEL online by the fourth quarter of 2020 or the first quarter of 2021. In addition to designing and building the ERO SEL, NERC will purchase hardware and software that will be incorporated into the ERO SEL by Presidio. Presidio will also engage third-party subcontractors to assist throughout the project. NERC will engage a third party to verify that the code for the system meets NERC's specifications before launch.

Development of the ERO SEL is currently underway, including the development and harmonization of the associated business processes.