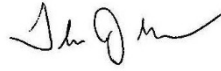


To: NERC Board of Trustees (BOT)
From: Thomas J. Galloway, NATF President and CEO
Date: April 15, 2020
Subject: NATF Periodic Report to the NERC BOT (May 2020)
Attachments: NATF External Newsletter (April 2020)



The NATF interfaces with the industry as well as regulatory agencies on key reliability and resiliency topics to promote collaboration, alignment, and continuous improvement, while reducing duplication of effort. Some examples are highlighted below and in the attached April NATF external newsletter, which is also available on our public website: www.natf.net/news/newsletters.

Response to COVID-19 Challenges

The NATF's response and approach are highlighted in the attached newsletter. As the situation evolves, we will continue to work to help mitigate challenges. A current example is work with NERC, FERC, DOE, and others on an epidemic/pandemic response plan resource.

Pilot Collaborations with Regions

The ERO and NATF have committed to working together under the April 2019 memorandum of understanding to advance our mutual objectives, leverage different strengths, and minimize duplication of effort. This involves a range of topics such as conducting joint workshops on various topics and NATF development of implementation guidance for selected standards. As noted in the newsletter, it also involves deeper collaboration on higher-tier risks, such as facility ratings and entity supply chain risk mitigation.

Transmission Resilience Maturity Model (TRMM)

The NATF has been working with the Electric Power Research Institute, the Department of Energy, and Pacific Northwest National Lab to develop a transmission resilience maturity model as a tool that a transmission organization can use to objectively evaluate and benchmark its currently established transmission resilience policies, programs, and investments, in order to target and prioritize enhancements where needed. A draft of the model has been created and was piloted by NATF member companies in early 2020.

Improvements to the model based upon lessons learned from the pilots are being incorporated into a TRMM Version 1.0, along with a suite of supporting documentation, planned for public release in third quarter of this year.

The NATF envisions incorporating the TRMM as an additional service offering for its members including metrics, resiliency-centric peer review modules, and targeted assistance on lagging domains.

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North American Transmission Forum External Newsletter

April 2020

Coronavirus Planning and Response

At the NATF, our top priority is the health and safety of our staff and members. To help inform our decisions during this coronavirus pandemic, we have been working closely with our members and tracking updates from the Centers for Disease Control and Prevention (CDC) and state and local authorities. In response, the NATF has taken specific actions to limit potential exposure for staff and members and has initiated specific coordination and information-sharing mechanisms to assist member planning and response.

Member Support

NATF member companies are evaluating and implementing their pandemic plans and taking actions to limit potential exposure for their employees. The NATF is facilitating information-exchange mechanisms to assist the membership in this regard, such as the following:

- Weekly webinars hosted by our System Operations Practices Group
 - Sharing of information, approaches, and practices
 - Topics have included response plans, operator staffing (safety/health, shift rotation, location, etc.), family support, and coordination of field personnel
- Page on our member site
 - Discussion boards
 - Member practices
 - Resource links

External Coordination

The NATF has been in close contact with industry partners during this time to discuss potential coordination, reduce duplication of effort, and deconflict pandemic-response webinars.

Office and Travel

The NATF office is closed until further notice, and all staff are working from home. NATF travel is cancelled through at least May 1.

Meeting and Events

We have postponed our near-term events (listed below). We will work with members and our industry partners to reschedule when appropriate.

- NATF-EPRI-NERC Transmission Resiliency Summit
- Peer Review (April)
- Risk Controls Compliance and Security Workshops

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- Peer Review (May)
- System Protection Practices Group Workshop
- Metrics Face-to-Face Meeting
- NATF-NERC-EPRI Planning and Modeling Workshop

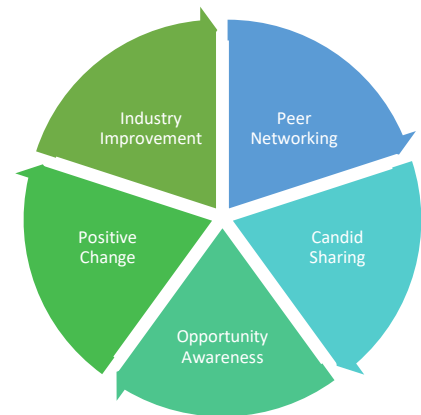
Our regularly scheduled webinars will continue as planned. The NATF membership is adept at exchanging information and sharing lessons learned during virtual meetings, and these interactions will be even more valuable as we deal with current circumstances.

The NATF will continue to support members and the industry in whatever capacity possible.

NATF's 100th Peer Review

In February, the NATF marked an organizational milestone by conducted its 100th peer review. The NATF Peer Review Program has evolved significantly since the first peer review in October 2008, and members provide consistently positive feedback on the program and the insights shared.

NATF peer reviews are diagnostic assessments of member companies with the goal of elevating programs towards excellence. NATF review teams, comprising the members' own subject-matter experts, conduct periodic, confidential evaluations of NATF member organizations (hosts). Each review consists of advance planning and preparation, two to four days of onsite interviews and observations, followed by a report to the host member's executives and staff. Noteworthy practices are brought back to NATF practice groups for prospective emulation, and specific improvement recommendations are provided to the host—often totaling 75 or more specific recommendations across four to nine technical areas. In addition, peer review team members consistently bring valuable information back to their home organizations and build new peer relationships.



At six months and one year following a review, staff meets with the host member to discuss implementation of the recommendations. Since we began this tracking in 2014, which is done to understand the “realized value” of the reviews, hosts have reported that close to 70% of the recommendations provided are fully or partially implemented or planned for future implementation.

NATF Begins Pilot Collaborations with NERC, RF, and SERC

In April 2019, the NATF and NERC executed an updated memorandum of understanding to advance our mutual objectives, leverage respective strengths, and minimize duplication of effort. This coordination spans a range of topics, including joint workshops (e.g., the annual human performance conference, planning and modeling workshops, and the resilience summit) and NATF development of implementation guidance.

In some cases, our efforts may involve a deeper level of collaboration, including with Regional Entities (part of the “ERO Enterprise” with NERC), on higher-tier risks, as appropriate. Through discussion of this topic and agreement among the NERC and NATF and regional entity CEOs in August 2019, two initial topics (facility ratings and supply chain risk mitigation) were selected to pilot the collaboration approach with two of the Regional Entities—ReliabilityFirst (RF) and SERC. These pilot collaborations aim to highlight and reinforce the following roles for the ERO and the NATF and other industry organizations, consistent with the NERC-NATF MOU:

ERO	NATF/Industry
<ul style="list-style-type: none"> • identify existing and emerging risks to reliability • facilitate strategies and activities to address the identified risks 	<ul style="list-style-type: none"> • characterize and validate the identified risks • implement appropriate strategies and activities among members to support mitigation of the identified risks

The pilot collaborations will also help to develop a repeatable approach for collaboration between the NATF and the ERO Enterprise.

Facility Ratings Collaboration

The ERO has identified, and has increased its focus on, the risk of inaccurate facility ratings and the impact on reliability of the bulk electric system. The issues identified to date generally involve discrepancies between documented equipment and/or facility ratings and current field conditions. Facility rating calculations have been inaccurate as a result of incorrectly rated or missing equipment. For example, the missing or incorrectly rated equipment includes jumpers and risers inside substations, bus bars, current transformers (including delta-connected current transformers), circuit breakers, and transmission line conductors. The ERO Enterprise has observed multiple contributing causes for the discrepancies, including insufficient processes and lack of controls.

When facility ratings are not determined correctly and applied consistently for all applicable facilities, equipment might operate beyond its capability, causing equipment damage or line sagging beyond design, resulting in unplanned outages. Additionally, system operator decisions could result in unintended consequences when based on inaccurate facility ratings.

In early 2019, the NATF initiated a project to develop practices to help ensure that facility ratings are developed using the entity’s facility ratings methodology, equipment and facilities are built and maintained in the field to ensure ratings are accurate, and ratings for equipment and facilities are documented and communicated. The NATF practice document will provide a guide to members for establishing a sustainable process for developing and maintaining accurate facility ratings.

The NATF will work with its members to socialize the practice document and review member implementation of the NATF practices related to facility ratings. As part of this pilot effort, the NATF will provide periodic summary updates to SERC, RF, and NERC.

Collaboration on Entity Mitigation Practices for Supply Chain Risks

Much of the supply chain cyber security work done thus far has targeted supplier assessment and addresses risks via understanding of and changes in supplier cyber security practices and risk-mitigation activities. In some cases, an entity will be unable to gain assurance of the supplier mitigations and will implement solutions internally to further reduce the risk by detecting anomalies and implementing protective measures at the entities facilities and systems.

Regional Workshops

For the collaboration on supply chain entity risk mitigation, the NATF, RF, and SERC will work together to develop and conduct a workshop for registered entity security professionals and SMEs in each of the two regions on mitigation practices that entities can employ on their systems, equipment, and networks as an additional line of defense to augment the supply chain risk assessment and procurement practices that are focused on addressing risks at the source. The focus of the workshops will be on security and cyber risk mitigation practices, not compliance and not supplier assessment or procurement practices. The workshops will target two or three specific risks, including characterization and discussion of the risks and potential practices to mitigate the risks.

Following the workshop, NATF, RF, and SERC will publish a summary of the outcomes of the discussions for industry.

The dates and registration information will be communicated to NATF members and to registered entities in each region once arrangements are finalized.

NATF Leads Industry Coordination and Alignment on Supply Chain Cyber Security

Supply chain cyber security risk management has been a priority for utilities over the last couple of years and is now more prevalent with the upcoming enforcement date (July) for NERC Reliability Standard CIP-013.

The NATF and its members have been working diligently on the issues facing our industry and have aligned efforts with other organizations so solutions bring maximum benefit for our members and are built on the work that has been done to date. This benefit comes largely in terms of having solutions accepted by the other industries we interact with; having a widely accepted and used approach for how the electric industry will manage cyber security issues makes the approach impactful enough to be of interest to these other industries, giving us the opportunity to work with them. This also attracts vendor organizations to develop tools that will support the approach and assist entities with implementation.

The alignment effort is being conducted through an Industry Organizations Team¹ that includes members from organizations in our industry, but also includes other industries and government organizations as well. This team worked together to align on solutions to (1) streamline common approaches to evaluating a supplier's

¹ The team of Industry Organizations includes representatives from industry trade organizations and forums, NATF member utility representatives, government agencies, key electric sector suppliers, and third-party assessors

cyber security practices, (2) provide for flexibility within the common approaches, (3) ensure the common approaches are scalable to include all suppliers and purchasing entities, and (4) assist with compliance (while the focus is on good cyber security practices, if executed properly the approaches will address requirements in the NERC supply-chain-related standards). The Industry Organizations Team stays in communication regarding open questions and issues entities are facing to help ensure that work is not duplicated, industry resources are working efficiently, and entities receive united, not conflicting, messages. A list of the participating and contributing organizations is available on the NATF public website.

New NATF Public Page

The NATF has developed a page on our public website that provides information on the work done by the contributing organizations to date, links to resources, a list of work in progress, opportunities to hear more about the efforts (e.g., webinars), announcements related to the effort, and visibility into the organizations that have been involved on the Industry Organizations Team. You can locate the [web page](#) under the new Industry Initiatives tab (select the Supply Chain Industry Coordination drop-down option) on the NATF public website.



The web page highlights these solutions:

- The “NATF Cyber Security Criteria for Suppliers” (Criteria)
- The “Supplier Cyber Security Assessment Model” (Model)
- The “Supplier Cyber Risk Assessment Questionnaire” (Questionnaire) (Coming Soon)
- The “EEI Model Procurement Contract Language Addressing Cybersecurity Supply Chain Risk” (EEI Procurement Language)

The NATF Criteria is the basis for work being done; it provides the criteria by which entities can evaluate a suppliers’ cyber security practices. This Criteria was developed by NATF members, reviewed by suppliers and assessors on the NATF Proof of Concept Team, and finally reviewed by the Industry Organizations Team.

The Model, which is supported by the Industry Organizations Team, provides a streamlined, effective, and efficient industry-accepted approach for entities to evaluate supplier cyber security practices, which, if applied widely, will reduce the burden on suppliers, provide entities with more and better information, and improve cyber security. This evaluation will provide critical information for entities to consider when conducting risk assessments for potential suppliers of products and services.

The Questionnaire (coming soon!) is one of the tools an entity can use to obtain information on a suppliers’ adherence to the NATF Criteria. It is a particularly helpful tool when a supplier does not have a third-party assessment conducted, the entity does not receive sufficient information in the third-party assessment report, or the third-party assessment (statement of applicability) does not cover all of the criteria.

The **EEI Procurement Language** provides template contract language that entities can use to address specific identified risks.

Protection System Misoperations Analysis Annual Report

The NATF Protection System Misoperations Analysis Initiative began in 2015. The NATF collects Misoperations data, produces metrics the NATF and individual members use to assess improvement efforts, and provides detailed information that the System Protection Practices Group and members can use to address specific causes of Misoperations. The Misoperations Analysis Working Group prepares member-specific protection system performance metrics that are included in the annual NATF Reliability Performance Reports and prepares a Protection System Misoperation Annual Report to analyze Misoperation categories, causes, and sub-causes, and make recommendations to the System Protection Practices Group and members.

The annual report provides detailed cause analysis protection scheme type. This arrangement, when combined with special analysis of hardware-related and communications-related Misoperations, supports recommendations that are actionable, realistic, effective, and linked to existing NATF practices and Principles of Operating Excellence.

In addition, enough data is now available to investigate how Misoperations rates are changing over time. The 2019 report provides the NATF overall and regional dependability, security, and Misoperations rate for three-year time periods, plus assessments of the changes of Misoperation categories and involved relay technologies over the same periods.

NATF and EPRI Team Up for Equipment Reliability

Equipment Problem Coding

Failed AC substation equipment is one of the leading causes of transmission system outages. For several years, the Equipment Performance and Maintenance (EPM) Substations Equipment and Asset Management Practices Groups have focused on understanding the causes of equipment failures and developing ways to detect negative trends **before** small problems turn into major issues that cause outages.

Equipment engineers and asset managers need to understand what equipment problems are being discovered and what failures are occurring. To make decisions about asset maintenance and replacement, this data must be easily classified by asset type, make, model, and nature of the problem.

The EPM Substations Equipment and Asset Management Practices Groups, in association with the Electric Power Research Institute (EPRI), have developed a method for coding equipment failures observed during corrective maintenance. This coding system, called equipment problem coding (EPC) meets the following objectives:

1. System provides standardized recording of both catastrophic equipment failures and functional problems, reducing the need to analyze narrative problem descriptions

2. Easily understood codes are applied “at the source” by those who are performing corrective maintenance, improving accuracy
3. Coding system can be implemented in any computerized maintenance management system
4. Standardized codes enable utilities to exchange data to better understand the types of problems experienced throughout the industry
5. System is extensible to multiple equipment types

Several NATF members are implementing the EPC system, and there are ongoing efforts to add new equipment types.

EPRI Industry Equipment Database

This year marks the fourth of an NATF collaboration with EPRI to support data collection as part of EPRI’s Industry-Wide Equipment Database (IDB) effort. NATF members submit in-service, failure data, and maintenance history for selected equipment types. This supports EPRI research that will ultimately help utilities identify high-value maintenance tasks, determine optimal maintenance frequency, make repair versus refurbish versus replace decisions, find “bad actor” equipment, and improve equipment specification and selection. NATF and member-specific failure metrics for various equipment classes are included in the annual NATF Reliability Performance Report.

The Takeaway

By implementing the EPC system and participating in the EPRI IDB program, members can take steps to identify and mitigate the causes of equipment problems before these problems evolve into catastrophic failures that cause outages.

Redacted Operating Experience Reports

Since our last newsletter, we have posted five reports to our [public site](#) for members and other utilities to use internally and share with their contractors to help improve safety, reliability, and resiliency.

For more information about the NATF, please visit www.natf.net.