

TO: NERC Board of Trustees (BOT)

FROM: Thomas J. Galloway, NATF President and CEO 

SUBJECT: NATF Periodic Update to the NERC BOT – February 2018

Attachments: 1. NATF External Newsletter – January 2018

The North American Transmission Forum (NATF) mission is to promote excellence in the reliable operation of the electric transmission system, with the vision to see reliability continuously improve. To augment our strategic goals, the NATF has five 2017 operation / technical focus areas as follows:

1. Resiliency / Security (tangible actions to mitigate, respond to and recover from severe casualties)
2. Human Performance / Skilled Workforce (reduced error frequency/consequences)
3. Equipment Performance and Asset Management
4. Operating Experience Exchange – cause analyses, corrective action, and lessons learned
5. Continuous performance improvement / mechanisms / processes / training

Supply Chain Cyber Controls

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The NATF developed the following two documents to support the NERC request and to serve as guidance for NATF members and the industry.

- NATF Guidance for CIP-005-6 Vendor Remote Access
- NATF Guidance for CIP-010-3 Software Integrity

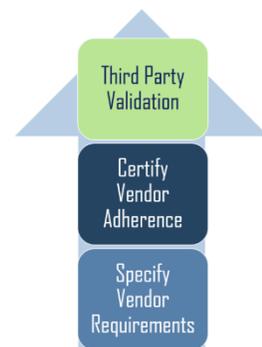
The files are posted on the [documents](#) page of the NATF public website and have been submitted to NERC for consideration as “Implementation Guidance.”

Other Related Efforts

The NATF has established a project team with diverse member expertise to develop guidance and practices to help members with the various challenges of cyber security supply chain risk management. NATF is composing a supply chain risk management framework for more efficient implementation of CIP-013 compliance by industry and its vendors. Due to the early success of this program, NATF is exploring additional collaboration opportunities with the ISO/RTO Council, NAGF, NRECA, and EEI with a goal of producing value-added, industry-supported supply chain risk management guidance.

One aspect of this business-based approach, as used successfully in other industries where cyber security risk must be managed, utilizes common cyber security controls:

- Specify supply chain cyber security requirements for vendors supplying relevant products and services to the industry;
- Request vendors certify they are compliant with those requirements;
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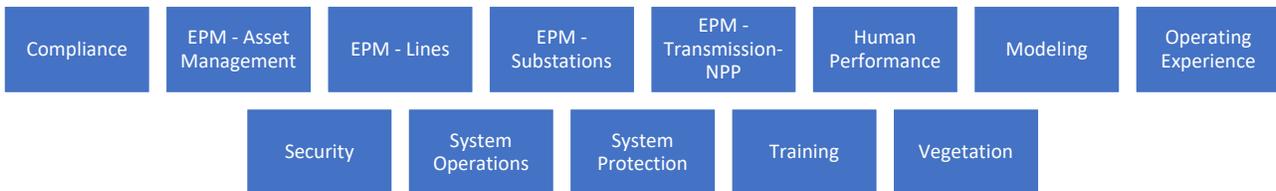
January 2018

NATF Program Overview: Practices

The NATF Practices Program encourages members to strive for operational excellence by capturing and sharing their own experiences, diverse wisdom, and “ways of doing things” in a set of constantly evolving practices. Our group of subject-matter experts’ collective knowledge includes system operating experiences, lessons learned, and superior practices; risk assessment and internal controls approaches for achieving operational performance levels that exceed compliance requirements; and other real-life experience and data from the members’ own practices, procedures, and programs.

NATF practices groups are comprised of member subject-matter experts who, with ongoing facilitation support from NATF staff, hold monthly web meetings and annual workshops and develop member resources, such as NATF practices, Principles of Operating Excellence (POEs), and reference documents.

Practices Groups



EPM = Equipment Performance and Maintenance

Resources and Tools

<p>Principles of Operating Excellence</p> <ul style="list-style-type: none"> •Collection of succinct statements (concepts and approaches) of what NATF members consider to be the attributes that make programs excellent 	<p>Practices</p> <ul style="list-style-type: none"> •Documents that describe “how” to implement Principles of Operating Excellence attributes to improve reliability, security, or resilience 	<p>Reference Documents</p> <ul style="list-style-type: none"> •One-pagers, industry topic summaries, technical references, and whitepapers that provide pertinent details for consultation about a topic
<p>Workshops</p> <ul style="list-style-type: none"> •Annual face-to-face meetings that provide member subject-matter experts opportunities to share information, work on projects, and enhance peer networks 	<p>Tools</p> <ul style="list-style-type: none"> •Examples include self assessment maturity model, risk/controls matrix, protection system maintenance program template, HP roadmap 	<p>Surveys/Polls</p> <ul style="list-style-type: none"> •Web-based surveys or polls are issued to relevant group(s); compiled, searchable results are posted for member use

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Resiliency Update

The NATF launched a “Spare Tire” project with a select team of NATF members in mid-2016 to address how we would operate the Bulk Electric System (BES) if both primary and backup control center capabilities were lost.

We are beginning to rebrand the “Spare Tire” work as “Supplemental Operating Strategies (SOS)” to align with the nomenclature being used by the Electricity Subsector Coordinating Council (ESCC), which serves as the principal liaison between leadership in the federal government and in the electric power sector, with the mission of coordinating efforts to prepare for national-level incidents or threats to critical infrastructure. The ESCC has been very interested in the NATF’s work on this subject.

Documents

The SOS project has resulted in two documents to-date for NATF members, and versions were subsequently shared with the industry:

- “NATF BES Monitoring and Control - An Overview of Backup Capabilities”
- “NATF BES Operations absent EMS and SCADA Capabilities - a Spare Tire Approach”

Both documents have been posted on the NATF public site (www.natf.net/documents).

No-Regrets Actions

A recent output based on the work of the SOS team as well as related projects and activities undertaken by several NATF members is a list of “no regrets” actions that members can take to prepare for a total of loss of both primary and backup control center capabilities:

1. SCADA / Human RTU
 - Create detailed plans for monitoring locations, visit frequency, and protocol for supplying information to all groups
 - Establish a template data sheet for system parameters to be reported for each station
2. Situational Awareness
 - Develop tools and train support staff to turn manually retrieved SCADA / human RTU data into actionable information for meaningful situational awareness and system operator action
3. Communication
 - Test availability and capability of alternative communication capabilities
 - Ensure communication scalability
 - Ensure operating staff are familiar and trained in the use of alternative methods of interpersonal communications
4. Staffing
 - Identify and train required personnel (system operators, field operations, support staff, etc.)
 - Provide logistical support for personnel
 - Draft plans for supplying food, shelter, transportation, etc.
5. Communications, Command, and Control
 - Adapt event management framework
 - Plan and conduct drills

Next Steps

SOS work will now focus on addressing the five next-step recommendations identified by the project team, with the NATF taking the lead on some items and EPRI taking the lead on others.

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1. Develop alternative voice and data communications
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2. Develop additional reliability tools/data availability for situational awareness
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3. Establish formal strategies and plans for “Spare Tire” operations scenarios
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4. Formalize data sharing on “Spare Tire” operations strategies
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5. Harden EMS hardware components and develop streamlined EMS recovery process and capabilities

NATF-EPRI Resiliency Summit

In addition to the SOS project, the NATF coordinates resiliency summits with EPRI. The most recent summit took place in October 2017 and included outside guests for a portion of the meeting.

Topics included the following:

- External panel: policy/regulatory resiliency considerations (NERC, FERC, DOE, EEI)
- Structural shielding from multiple threats (blast protection, IEMI, HEMP)
- NATF supplemental operating strategies update
- Summer 2017 resiliency activities survey results
- Cyber resiliency
- Resiliency in control center design and construction
- Resiliency and protection of critical substations
 - Hardening of control houses
 - Protection and control equipment in substations
 - Transmission line hardening

Resiliency Survey

In conjunction with EPRI, in summer 2017 the NATF completed a survey on the transmission-resiliency practices of NATF members and select EPRI members. The purpose of the survey was:

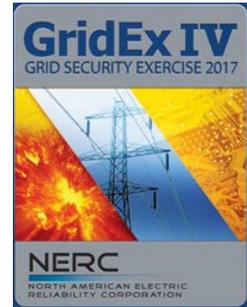
- To capture a snapshot of activities and business practices individual member companies were implementing to assess and manage specific transmission resiliency-related threats (e.g., GMD and IEMI)
- To help members compare themselves against other members regarding transmission resiliency actions
- Serve as a valuable baseline assessment of NATF- and EPRI-member approaches to resiliency

Results were presented at the resiliency summit mentioned above and were shared with members as input for their resiliency efforts.

NATF Members and Staff Participation in GridEx IV

NATF members and staff participated in NERC's November GridEx IV exercise, which featured a number of aspects contemplated in the Supplemental Operating Strategies (Spare Tire) effort mentioned earlier.

NATF staff observed the exercise at three member locations to help identify opportunities for additional NATF work on practices and guidance for operating and restoration in extreme circumstances. The NATF System Operations Practices Group plans to include an after-action discussion of the drill during an upcoming meeting.



Cybersecurity Supply Chain Risk Management

Federal Energy Regulatory Commission (FERC) Order 829 directed the North American Electric Reliability Corporation (NERC) to develop "a forward-looking, objective-based Critical Infrastructure Protection (CIP) Reliability Standard that requires each affected entity to develop and implement a plan that includes security controls for supply chain management for industrial control system hardware, software, and services associated with bulk electric system operations." FERC noted the standard should address software integrity and authenticity, vendor remote access, information system planning, and vendor risk management and procurement controls.

Subsequently, the NERC board asked the North American Transmission Forum (NATF) and North American Generator Forum to "develop white papers to address best and leading practices in supply chain management, including procurement, specifications, vendor requirements and existing equipment management, that are shared across the membership of each Forum, and to the extent permissible under any applicable confidentiality requirements, distribute such white papers to industry."

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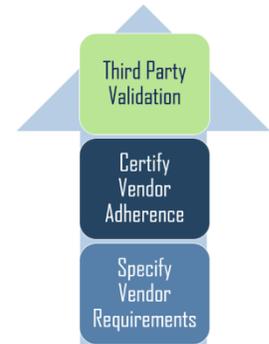
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New MOU with IEEE PES

An important aspect of the NATF value proposition is to foster efficient use of industry resources. To that end, the NATF interfaces with industry partners and regulatory agencies through meetings and conferences; shares documents with the industry via its public website; conducts joint workshops with select organizations; and coordinates or supports industry initiatives on key reliability and resiliency topics.

The NATF recently executed a memorandum of understanding (MOU) with the IEEE Power & Energy Society (IEEE PES). The NATF and IEEE PES agreed to work together and facilitate interactions on matters of mutual interest pertaining to the electric transmission system. Both groups seek to more effectively align efforts to address reliability and resiliency challenges due to significant changes in energy supply, demand, and technology. Cooperation includes but isn't limited to (1) sharing technical needs and addressing challenges for infrastructure planning, modeling, system operations, and cyber/physical security; (2) identifying existing and emerging technological requirements and needs and approaches for addressing them; and (3) developing, disseminating, and sharing information related to the planning, operations, and maintenance of electric transmission systems and their component parts.



For more information, please see the [IEEE PES press release](#).

Workshops

In addition to regular web meetings, NATF working groups hold annual workshops and in-person meetings. Recent and upcoming activities include:

- Security Workshop (November)
- System Operations Workshop (November)
- Transmission-Nuclear Power Plant Interface Workshop (November)
- Joint NERC/NATF Human Performance Conference and Workshops (March)