NAGF Overview & Update

Mike Gabriel
Deputy Chief Operating Officer

mike.gabriel@ethosenergygroup.com
Agenda

- NAGF Overview
- Strategic and Tactical Engagement
- Collaboration: Groupsite
- How to join the NAGF
- Questions
The NAGF mission is to promote the safe, reliable operation of the generator segment of the bulk electric system through generator owner and operator collaboration with grid operators and regulators.
Strategic Goals

- Foster relationships with regulators and advocacy groups to provide avenues to educate and collaborate on the needs of NAGF members
- Promote effective information exchange and learning opportunities for and between members
- Grow the NAGF to be the premier organization dedicated to generator reliability issues
Current Status

- 60+ member companies, 360+ active participants
- Incorporated as a tax-exempt 501(c) (6) corporation
- Hiring first permanent employee July 2017
- Collaboration website: www.nagf.groupsite.com
- Information on Board, Officers, Organization, and Strategic Plan can be found at:

  http://www.generatorforum.org/about_us
Agenda

- NAGF Overview
- **Strategic and Tactical Engagement**
- Collaboration: Groupsite
- How to join the NAGF
- Questions
Strategic & Tactical Engagement

The NAGF engages using two distinct methods:

• Strategically: directionally steering industry to help preserve the reliability of the system
• Tactically: focusing on the critical activities required to ensure reliability and meet compliance

Strategically, we seek to inform regulators regarding the technical capabilities, technical constraints and economic impacts of Standards and proposed changes.
The NAGF has members on the:
- Planning and Operating Committees
- Resources and Event Analysis Subcommittees
- Essential Reliability Services Working Group

We have placed members on:
- 2016-EPR-02 Enhanced Periodic Review of Voltage and Reactive Standards
- 2016-04 Modifications to PRC-025-1
Strategic Engagement

- The NAGF attends quarterly NERC Trades Association conference calls to discuss issues

- The NAGF comments on FERC Notices Of Inquiry and Notices of Proposed Rulemaking

- The NAGF attends the NERC Board of Trustees Meetings and provides Policy Input to the Board as requested
Strategic Engagement

- The NAGF and NERC organized a Primary Frequency Response (PFR) Workshop in Washington, D.C. where FERC, NERC, OEMs and the NAGF discussed opportunities for improving PFR

- We participate on the PFR WebExs with Troy Blalock of SCANA
The NAGF Standards Review Team provides feedback to NERC on developing Standards

- PER-006 Specific Training for Personnel
- Modifications to PRC-025-1, Generator Relay Loadability

The NAGF solicits member SMEs for the drafting teams
Developing focus areas:

- Working toward solutions regarding inverter response to voltage and frequency excursions
- Distributed Energy Resources applications, controls and monitoring
- Battery Storage
Tactical Engagement

- The NAGF has members on the NERC Standards Committee (SC) and the Compliance Certification Committee (CCC)
  - approved by the CCC as a Pre-Qualified Organization for submitting Implementation Guidance for ERO Enterprise endorsement, per the NERC Compliance Guidance Policy
- Hosted WebEx for PER-006 compliance program development – training!
- Held first regional compliance meeting May 22nd
Working Groups

➢ Variable Resources

➢ Security Practices / CIP

➢ Cold Weather Preparedness

➢ Essential Reliability Services

➢ Standards Review Team

➢ Technical writing / publications (coming soon)
To be held in NERC’s offices in Atlanta

October 10-11

Proposed agenda items:

- IRA, ICE & CMEP
- Regulatory expectations during an audit
- CIP-003 and CIP-013 developments
- Upcoming standards impact on generation
- CIP low impact implementation challenges and successes
- FERC update: a view from the perch
- Primary frequency response
- SDT updates: O&P
- PRC-005-6: batteries and Sudden Pressure Relays
- Power plant modeling
- GADS for wind
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Collaboration: Groupsite

- Post questions and share information with the generator community
  - Announcements, email blasts, meeting calendar, compliance experience, etc.
- Share documents in the file cabinet
- Join working groups
- Posting job opportunities
Welcome to the North American Generator Forum

The North American Generator Forum (NAGF) was founded in 2009 as a vehicle for utility and non-utility owned generator owners and/or generator operators to address issues related to registration, compliance, standards development and other NERC-related topics. In 2013, the North American Generator Forum, Inc. became a non-profit, dues based corporation.

We provide entities who are generator owners and operators in North America a means to collaborate and communicate with FERC, NERC, the Regional Entities, the Canadian Provinces and other organizations with missions similar to ours, with the ultimate goal of improving the reliability of the bulk power system.

More information is available at: http://generatorforum.org/

REQUEST TO JOIN BY CLICKING HERE

May 22nd: NAGF Spring Compliance Event

Register here: https://www.eventbrite.com/e/nagf-compliance-event-at-npcc-spring-workshop-tickets-32396604115

We will be holding our first NAGF Spring Compliance Event. Feedback from previous annual meetings and surveys indicated a desire to hold some NAGF meetings out in the regions.

We will host a half day NAGF session immediately prior to the NPCC Spring
# Collaboration: Groupsite

General Discussions

General Discussions about issues relevant to the NAGF and its members.

Post in this forum via email: discussions@nagf.groupsite.com

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- Questions
Joining the NAGF

Request membership via:
https://nagf.groupsite.com/join
-or-
http://generatorforum.org/contact_us
-or-

Send an email requesting membership to:

Mike Gabriel
mike.gabriel@ethosenergygroup.com
Agenda

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- Collaboration: Groupsite
- How to join the NAGF
- Questions
Thank you!

www.GeneratorForum.org
Spring 2017 Compliance and Standards Workshop
May 23- 25, 2017

Criteria Services Update

Gerry Dunbar
Manager, Reliability Criteria
Outline

• Introduction

• NPCC Directory Project

• NPCC Regional Criteria---More Stringent/Specific

• Current Reviews
Introduction

• NPCC Full Members Develop and ‘Own’ Criteria

• **Who:**
  – NPCC Full Members Obligated to Comply
    • NPCC By Laws
  – Non-Members Other Agreements (Tariff and Interconnection)

• **What:**
  – NPCC Bulk Power System (Defined via A-10 Methodology)
    • More Stringent Criteria
    • Section 313 NERC Rules of Procedure

• **Why:**
  – Promote Reliability
    • Augment and Enhance ERO Standards
NPCC Directory Project

- **NPCC Directories**
  - Criteria Contained within Directory
  - Eleven Directories
    - Two Remaining ‘A’ Criteria Documents

- **NPCC Task Forces**
  - NPCC SME’s (Task Force Members) Develop and Maintain Criteria
  - Open Process Postings
    - New, Revised or Retire
    - NPCC Criteria as a ‘Reliability Bar’----Directory#3/PRC -005
    - Criteria Clarifications
  - Member Comment and TF Review
  - NPCC Full Member Ballot Approval
NPCC Regional Criteria

More Specific/Stringent Attributes:

• **Directory#1---Design and Operation of the BPS** (TPL-001-4)
  – Planning/Extreme Contingencies
  – Conditions for Contingency Testing
  – Area Resource Adequacy (Appendix D) and Area Transmission Review (Appendix B)

• **Directory#4---System Protection Criteria** (PRC-005-6 and PRC-024-2)
  – Equipment and Design Criteria (Redundancy----C.T.s, P.T.s, DC Supply, Control Cable Wiring)
  – Specific Application Considerations (Separate and Independent Protection Groups, Detection Mechanisms)

• **Directory#5 ---Reserve** (BAL-002-2)
  – Reserve Requirements (10 and 30 Minute)
  – Simultaneous Activation of Reserve
  – Interchange Scheduling and Frequency Response

5/25/2017
NPCC Regional Criteria
More Specific/Stringent Attributes:

- **Directory#7---Special Protection Systems** (PRC-012-2)
  - Type I, Type II and Type III
  - Regional Review of New or Modified SPS’s.

- **Directory#8 ---System Restoration** (EOP-005-3 and EOP-006-3)
  - Basic Minimum Power System
  - Critical Components
  - Key Facilities

- **Directory#11---Disturbance Monitoring** (PRC-002-2)
  - Fault Recording on BPS Buses
Current Task Force Criteria Reviews

**A-10 Classification of Bulk Power System Elements**

- **Objective:**
  - Consider Existing and Alternative Methodologies to:
    - Identify Critical Facilities for the Applicability of NPCC Criteria.
    - Simplify the Existing Methodology (Less Labor Intensive).
    - Improve Consistency in Application and Outcomes.

- **Phase 1 (2017):**
  - Develop Improvements to Existing Methodology
  - Analyze New Methodologies

- **Phase 2 (2018):**
  - Testing of Proposed Methodologies
  - Applicability of the Methodology to NPCC Directories
Current Task Force Criteria Reviews

• **Directory#7 Special Protection Systems** (Pending)
  - PRC-012-2 RAS
  - Regional Transition

• **Directory#8 System Restoration**
  - PRC-005-6 Protection Maintenance (Battery Testing)

• **Directories #9 and #10 Verification Criteria**
  - MOD-25-2 (NPCC TOP Verification Program)
NPCC Regional Criteria Summary

• Applicable to NPCC Full Members
  – Non-Members Other Agreements (Tariff and Interconnection)

• Promote Reliability in the Northeast

• Criteria Can Augment or Implement/Comply with ERO Standards

• NPCC Task Forces Review, Revise/Retire as ERO Standards Evolve
Questions or Comments?
NPCC Monitoring Team Update

John Muir
Manager, Compliance Monitoring
Topics

Risk Based Compliance Monitoring
2017 Compliance Monitoring Program
Risk Based Compliance Monitoring

Some Definitions..

• CMEP / IP - Compliance Monitoring and Enforcement Program / Implementation Plan
• IRA – Inherent Risk Assessment
• ICE – Internal Controls Evaluation
• BES – Bulk Electric System
Risk Based Compliance Monitoring

• examine risk to the Bulk Power System
• identify individual Registered Entity risk
• determine the most appropriate CMEP tool
• promotes an examination into how registered entities operate
• tailors compliance monitoring focus to areas that pose the greatest risk to BES reliability.
• the elements of ‘The Framework’ are dynamic and are not independent; rather, they are complementary and dependent on each other.
Risk Based Compliance Monitoring

- Annual Implementation Plan
  - Updated Quarterly
  - Completed for all Entities in 2016
  - Updated when on Annual Audit List

- Can Be Completed Prior to Compliance Monitoring

- Audit / Spot Check / Guided Self-Certification

- Risk Elements
  - Registered Entity Functions
  - ERO & Regional Characteristics
  - Events
  - RISC

- Initial Scope
  - Inherent Risk Assessment

- Scope

- Focus

- CMEP Tools
  - Internal Controls Evaluation
  - Oversight Tool Selection

- Entity Compliance Oversight Plan
Risk Based Compliance Monitoring

• A reduced scope is not the primary focus of Risk Based Compliance Monitoring.
• Reliability is.
• An ICE may identify weak controls and provide guidance for improvements.
• During an Compliance Monitoring Engagement, especially audits, the Audit Team will also touch on Internal Controls for in-scope Requirements.
• Afterwards feedback is provided to the Risk Assessment Group.
2017 Compliance Monitoring Program

– Operation and Planning:
  • 8 on-site
  • 36 off-sites
    – Audits, Spot Checks or Guided Self-Certifications

– CIP:
  • 12 on-site audits
  • 11 off-site Audits.
2017 Compliance Monitoring Program

- ERO Consistency
- New Audit Notification Letter
  - Summary Page
  - More Streamlined
- New Public and Non-Public Audit Report Templates
  - Provide details on non-compliance issues only
  - Includes section for Control Evaluation review
Guided Self-Certification (GSC) Program

Jacqueline Jimenez
Compliance Engineer
NPCC
GSC History

• GSC program began in 2015.
  – Transitioned over from a Self-Certification Program.

• GSCs require evidence to support compliance.

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GSC Compliance Procedure

• CP-06 Procedure for Guided Self-Certification and Self-Reporting.
GSC Notification

• The GSC notification letter is sent to the Primary Compliance Contact (PCC).
  – Contains details on the GSC process and the submittal process.

• A Guided Self-Certification Worksheet is provided with information on the Standard and Requirement(s).
  – Must be submitted with evidence.
GSC Notification (cont’d)

• Information on the audit period and due date are provided and can also be found in CDAA.
• Registered entities will have 45 days to respond to the GSC notification.
GSC Submittal

- Submittal of the completed Guided Self-Certification Worksheet and applicable evidence is done in the CMEP Data Acquisition and Administration (CDAA) portal.
  - CDAA will contain only the Requirement(s) selected for that GSC.
  - A link for instructions on filling out a GSC in CDAA are provided in the notification letter.
Evidence Preparation

• Provide a detailed narrative in the Guided Self-Certification Worksheet.
• Reference specific sections, pages, or appendices in any evidence provided to support compliance.
• Only provide evidence that is relevant, more is not always better.
GSC Results

• A GSC Summary Letter is sent to the PCC.
  – It will identify whether any potential non-compliances were identified by NPCC.
Q2 2017 GSC Update

• COM-002-4
  – Requirement: R3
  – Function: GOP
  – Entities: 55
    • Still in the process of reviewing
Q2 2017 GSC Update (cont’d)

- NUC-001-3
  - Requirement: R2
  - Function: TO
  - Entities: 3
    - Compliant: 3
    - Not Applicable: 0
    - Possible Non-Compliance: 0
2017 GSC Schedule

- This is a tentative schedule. Dates, Standards, and Requirements are subject to change.

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Questions

Jacqueline Jimenez
Compliance Engineer
jjimenez@npcc.org
TPL-007 Revisions
NERC Standards Project 2013-03 GMD Mitigation

Frank Koza, PJM Interconnection
2017 Spring NPCC Compliance and Standards Workshop
May 25, 2017
...the Commission approves Reliability Standard TPL-007-1 as just, reasonable, not unduly discriminatory or preferential and in the public interest. While we recognize that scientific and operational research regarding GMD is ongoing, we believe that the potential threat to the bulk electric system warrants Commission action at this time, including efforts to conduct critical GMD research and update Reliability Standard TPL-007-1 as appropriate.

• Order No. 830 directs NERC to revise TPL-007 to address Commission concerns
  ▪ Modify the benchmark GMD event definition used for GMD assessments
  ▪ Require entities to collect GMD data for model validation purposes
  ▪ Establish deadlines for Corrective Action Plans (CAPs) and mitigating actions to address identified GMD impacts

• Revisions must be filed by May 2018
## Standard Drafting Team

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<td><strong>Chair</strong></td>
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<td>Donald Atkinson</td>
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• TPL-007-1 addresses risks of voltage collapse and equipment damage in the Bulk Electric System (BES) caused by GMD events

• Applicable Entities:
  - **Planning Coordinators and Transmission Planners**—perform GIC calculation and network analysis (Vulnerability Assessments)
  - **Transmission Owners**—assess extra high voltage transformers (Wye-grounded on high side, 230kV and higher)
  - **Generator Owners**—assess extra high voltage transformers (Wye-grounded on high side, 230kV and higher)
A brief review of TPL-007-1...

• Components of TPL-007-1
  ▪ Benchmark GMD event
  ▪ GMD Vulnerability Assessment
  ▪ Transformer Thermal Assessment
  ▪ Corrective Action Plan (CAP)

• Implementation phased in over five year period beginning January 2017 (R1 compliance date: July 1, 2017)
• Assessments are based on a severe 1-in-100 year GMD event. Two components for analysis:
  ▪ Amplitude of 8 V/km scaled to the entity’s planning area
  ▪ Waveform for assessing transformer hot-spot heating

Source: NERC Benchmark GMD Event Description, May 2016
Calculated Peak Geoelectric Field

\[ E_{\text{peak}} = 8 \times \alpha \times \beta \text{ (in V/km)} \]

where,

\[ E_{\text{peak}} = \] Benchmark geoelectric field amplitude at System location

\[ \alpha = \] Factor adjustment for geomagnetic latitude

\[ \beta = \] Factor adjustment for regional Earth conductivity model

8 V/km is the peak geoelectric field amplitude at reference location (60° N geomagnetic latitude, resistive ground model)
• The objective of the GMD vulnerability assessment is to prevent instability, uncontrolled separation, or cascading failure of the System during a GMD event.

• System performance is evaluated based on:
  - System steady-state voltage criteria established by the planning entity.
  - Cascading and uncontrolled islanding shall not occur.
• TOs and GOs conduct thermal impact assessment of EHV power transformers (Wye grounded on high side at 230kV or higher)

• Techniques:
  ▪ Manufacturer performance curves
  ▪ Thermal response simulation
  ▪ Thermal impact screening

• **Assessment is **not required **for transformers < 75 A per phase peak GIC for the Benchmark event**
The Commission approves the reference peak geoelectric field amplitude figure proposed by NERC. In addition, the Commission... directs NERC to develop revisions to the benchmark GMD event definition so that the reference peak geoelectric field amplitude component is not based solely on spatially-averaged data.

-Order No. 830 P 44
What do we know about “local enhancements”/peak events?

- Phenomenon that has been observed and for which the electric field amplitudes are fairly well understood, but the geographical extent is not well known.
- Initial review of data from several significant events—Quebec/1989; Greenland/Halloween, 2003; Svalbard, Norway/Halloween, 2003; Alaska/March 2015.
  - Waveform similarities—local intense peak (2-5 min in duration)
  - Longitudinal extent: ~300-500km; Latitudinal extent: ~100km
  - Amplitude increase: ~ factor of 2
Brorfelde (BFE), Denmark (March '89)

Geoelectric field distribution 0089-03-13T21:44:00 UT. Max. |E|: 5.90 V/km.
The regional geoelectric field peak amplitude, $E_{\text{peak}}$, to be used in calculating GIC in the GIC system model can be obtained from the reference value of 17 V/km using the following relationship:

$$E_{\text{peak}} = 17 \times \alpha \times \beta \text{ (V/km)}$$

where $\alpha$ is the scaling factor to account for local geomagnetic latitude, and $\beta$ is a scaling factor to account for the local earth conductivity structure.

BUT, due to the fact that we are at the edge of the science and modeling, a Corrective Action Plan would NOT be required (like TPL Category D) and the methods for applying the supplemental GMD benchmark are left to the planners.
Simulation of the “Local Enhancement”

For illustration purposes, a local enhancement on the order of 100km (lat) by 300km (long) would be applied at 17 V/km in a local area and the GICs calculated.

No Corrective Action Plan required, but the results are to be evaluated for possible mitigating steps.

Grid is 100km X 100km
Performing the Supplemental Analysis

“How to” left to the planners, but could be:

• Scaled 17 V/km applied to entire system, or
• Scaled 17 V/km applied to slices of the system (“moving box”), or
• Other methods (e.g. scaled 17 V/km and scaled 8 V/km results compared and incremental reactive power consumption fed into the AC power flow)

Reality check:

• Power flow software vendors are catching up to the need to apply multiple geoelectric fields to the system topology
• More work to be done before this proposal goes forward
...the Commission directs NERC to revise Requirement R6 to require registered entities to apply spatially averaged and non-spatially averaged peak geoelectric field values, or some equally efficient and effective alternative, when conducting thermal impact assessments.

(Order No. 830 P 65)
Transformer Thermal Assessment

- Scaled 17 V/km used to calculate GIC(t)
- Thermal Screening Criterion would be 85 amperes

If times series analysis is required, then
- Local enhancement synthetically inserted into the benchmark wave shape

BUT, results are informational, left to the asset owner to address, and no Corrective Action Plan is required
• TPL-007 requires CAP when the GMD Vulnerability Assessment indicate system performance requirements are not met

• Options include
  ▪ Hardening the system
  ▪ Installing monitors
  ▪ Operating procedures

• Order No. 830 directs revisions to establish CAP deadlines (P 101)
  ▪ One year for development of CAP
  ▪ Two years for implementing operating procedure mitigation
  ▪ Four years for implementing hardware mitigation

If the required deadline cannot be met, the implementing entities would be required to report to the Regional Entity and provide basic update reports on an annual basis until completed
The Commission ... adopts the NOPR proposal in relevant part and directs NERC to develop revisions to Reliability Standard TPL-007-1 to require responsible entities to collect GIC monitoring and magnetometer data as necessary to enable model validation and situational awareness, including from any devices that must be added to meet this need. The NERC standard drafting team should address the criteria for collecting GIC monitoring and magnetometer data... and provide registered entities with sufficient guidance in terms of defining the data that must be collected....

-Order No. 830 P 88
GIC Detectors

R11 Each responsible entity, as determined in Requirement R1, shall implement a process to obtain GIC monitor data from at least one (1) GIC monitor located in the Planning Coordinator's planning area or other part of the system included in the Planning Coordinator's GIC System model.

Magnetometers

R12 Each responsible entity, as determined in Requirement R1, shall implement a process to obtain geomagnetic field data from at least one (1) magnetometer located in the Planning Coordinator's planning area or other part of the system included in the Planning Coordinator's GIC System model.
Next Steps in Standards Development

- Hope to post for initial comment and vote in June
- Intend to seek input and keep NERC GMD Task Force informed of progress
- NERC GMD Task Force is working on the research plan that addresses other FERC directives

- Refer to NERC website, Standards Under Development: Project 2013-03 GMD Mitigation
Questions and Answers
Back-up Slide
*January 1, 2017 is the first day of the calendar quarter after Order No. 830 becomes effective. For more info see the Implementation Plan posted on the project page.*
Risk Based Enforcement

Francesco Elmi
May 2017
Albany, New York
• In 2016, approximately 87% of non-compliances were identified internally by registered entities.
  o Includes Self-Reports, Self-Logs, Self-Certifications, Periodic Data Reporting
  o Excludes self-identifications before a compliance audit or spot check.

• NERC has 59 registered entities that have been approved to self-log (NPCC has 14)
  o (42 Self-logging Entities in 2015)
2017 Enforcement Dates for 37 new standards

January 1, 2017
• IRO-010-2 (R1, R2) – Reliability Coordinator Data Specification and Collection
• TOP-003-3 – Operational Reliability Data (R5 on April 1, 2017)
• CIP-010-2 (R3.1) – Cyber Security — Configuration Change Management and Vulnerability Assessments (R4 on April 1, 2017)

January 24, 2017
• 3. BAL-002-WECC-2a – Contingency Reserve

April 1, 2017
• CIP-003-6 (R1.2 & R2) – Rest was enforceable as 7/1/2106
• CIP-004-6 (R2.3, 4.3, 4.4) – Cyber Security — Personnel & Training
• CIP-006-6 (R3.1) – Cyber Security — Physical Security of BES Cyber Systems
• CIP-008-5 (R2.1) – Cyber Security — Incident Reporting and Response Planning
• CIP-009-6 (R2.1, R2.2) – Cyber Security — Recovery Plans for BES Cyber Systems
• CIP-010-2 (R4) – Cyber Security — Configuration Change Management and Vulnerability Assessments
• EOP-004-3 – Event Reporting
• EOP-010-1 (R2) - Geomagnetic Disturbance Operations
• **EOP-011-1 - Emergency Operations**
• **FAC-010-3 - System Operating Limits Methodology for the Planning Horizon (enlarged scope-Entities w/RAS)**
• FAC-011-3 - System Operating Limits Methodology for the Operations Horizon
2017 Enforcement Dates for standards

April 1, 2017
• IRO-001-4 - Reliability Coordination – Responsibilities
• IRO-002-4 - Reliability Coordination – Monitoring and Analysis
• IRO-008-2 - Reliability Coordinator Operational Analyses and Real-time Assessments
• IRO-010-2 (R3) - Reliability Coordinator Data Specification and Collection
• IRO-014-3 - Coordination Among Reliability Coordinators
• IRO-017-1 - Outage Coordination
• MOD-029-2a - Rated System Path Methodology (enlarged scope-Entities w/RAS)
• MOD-030-3 - Flowgate Methodology
• PRC-004-WECC-2 - Protection System and Remedial Action Scheme Misoperation
• PRC-004-5(i) - Protection System Misoperation Identification and Correction (April 2, 2017)
• PRC-010-2 - Undervoltage Load Shedding (April 2, 2017)
• PRC-015-1 - Remedial Action Scheme Data and Documentation (transition from SPSs to RASs, replaces all SPS-related standards)
• PRC-016-1 - Remedial Action Scheme Misoperations (same as PRC-015-1)
• PRC-017-1 - Remedial Action Scheme Maintenance and Testing (same as PRC-015-1 and PRC-016-1)
• PRC-023-4 - Transmission Relay Loadability
• TOP-001-3 - Transmission Operations
• TOP-002-4 - Operations Planning

July 1, 2017
• MOD-033-1 – Steady-State and Dynamic System Model Validation
• TPL-007-1 – Transmission System Perf. for Geomagnetic Disturbance Events
• CIP-010-2 (R3.1) – Cyber Security — Configuration Change Management and Vulnerability Assessments

October 1, 2017
• COM-001-3- Communications
• IRO-002-5 - Reliability Coordination – Monitoring and Analysis
NERC - Comparison of Non-compliances discovered
(41% increase 2015-2016)
Top 10 Most Violated Standards

- CIP-007: 158
- PRC-005: 118
- CIP-004: 98
- CIP-006: 91
- CIP-001: 71
- CIP-005: 65
- CIP-002: 40
- VAR-002: 29
- CIP-003: 28
- FAC-008: 20
Top 10 Most Violated over the last 12 months (April-April)

- CIP-007: 20
- PRC-005: 15
- CIP-010: 14
- CIP-004: 14
- PRC-006: 9
- CIP-006: 8
- PER-005: 4
- PRC-019: 4
- CIP-011: 3
- CIP-005: 3
All time reported potential violation by Discovery Method (69.3 % Self-Identified)
Comparison of Non-compliances Reported (57% increase 1Q 2016-2017)
Top 10 most violated standard in 1Q 2017

- **CIP-010-2**: 9 violations
- **PRC-006-NPCC-1**: 8 violations
- **CIP-007-6**: 6 violations
- **CIP-006-6**: 5 violations
- **PRC-005-6**: 4 violations
- **CIP-004-6**: 4 violations
- **CIP-011-2**: 3 violations
- **PRC-005-1.1b**: 2 violations
- **VAR-002-4**: 2 violations
- **PRC-019-2**: 2 violations

(Bar chart showing the number of violations for each standard.)
Top 10 most violated standards in 1Q 2017
Reported potential violation in 1Q 2017 by Discovery Method (94.5% Self-Identified)
Revised metrics—Reported potential violation in 1Q 2017 by Discovery Method (72.7% Self-Identified)
Items of Interest

1. **PRC-006-NPCC-1 R13**
   - NPCC Regional Standard R13 says GO shall set UF trip relay “below” the curve (Fig. 1). “Compliance clarification: “on or below the curve” is acceptable to show compliance with R13 of PRC-006-NPCC-01.

2. **PRC-006-NPCC-1 (R13) vs. PRC-024-2 (R1)**
   - GO function applicability common to both
   - The UFLS curve of PRC-006-NPCC-1 R13 is more stringent than PRC-024-2 R1
   - Setting shall satisfy both

3. **PRC-019-2 & PRC-024-2**
   - Both have an implementation Plan: 40% by the effective date of standards
   - Assets in scope of the standards → # of registered assets
   - The historical in-service status (e.g. shutdown status), or low capacity factor of generating assets does not alter the applicability status of assets towards the standards
   - FERC’s Risk Assessment Guidance – low operating capacitor (e.g. 0%) insufficient, by itself, to support a determination of low risk.

4. **PRC-024-2**
   - Standard contains a number of exception/exemptions for Voltage/Frequency settings
     - Lack of capability of existing relays are excluded by R3 – Hint: replace with a more modern relay
   - Being within tolerance of a required setting not acceptable – requirement to be met as it is stated
Items of Interest

5. CIP-002-5.1a – impact on CIP-010-2 R1.2 Attachment 1, Section 2.1 - Rated max capability-Manufacturer’s Nameplate rating (higher of Summer/Winter) regardless of constraints external to the generating unit
   - Transmission outlet capability, other dispatch constraints
   - Fluctuations in Rated capability from season to season (temporary in nature) not to be used

CIP-010-2 R1.2 (treatment of High/Medium Impact BES Cyber System)

6. Transition from a standard to the next version. – Q: “Is it OK to be non-compliant with current standard when transitioning to a less restrictive future version of the standard?”:
   - Example: PRC-002-NPCC-1 R6 or R14 PRC-002-2 R4.3
   - Absent a directive from NERC, need to comply with standard in force. Still a violation.
   - NPCC will accept an MP that will let you comply with the new standard (on a case by case basis).

7. CIP-014-2 R1 – Guideline within the standard defines applicability (e.g. a Primary Control Center)
   - Definition of ECC as “A primary control center operationally controls a Transmission station or Transmission substation when the control center’s electronic actions can cause direct physical action at the identified Transmission station or Transmission substation, such as opening a breaker, as opposed to a control center that only has information from the Transmission station or Transmission substation and must coordinate direct action through another entity.”
Disposition Methods

- **Dismissal**
- **CE Compliance Exception (RAI – starting in 2015 – outside of the CMEP process)**
  - Must be mitigated within 12 months of the time of NERC’s public posting of Ces
  - Part of an Entity’s compliance history (except if it is a Self-Log)
  - Minimal Risk, $0, minimal paperwork
  - Not considered a “possible violation”; instead “potential non-compliance”
- **FFT**
  - Moderate risk, $0 penalty still
  - Part of an Entity’s compliance history
  - FFT Opt Out, Affidavit
  - Still efficient and focuses resources, a bit more paperwork
  - Not considered a “confirmed violation”; but still a Notice of Possible Violation is sent to the Entity
- **SNOP**
  - Risk attribute: generally “minimum/moderate”, mode
  - Short Settlement Form
  - Short NOCV Form
- **NOP**
  - Risk attribute: generally “serious or substantial”, also appropriate for an Entity with a “large number of minimum/moderate risk violations”
    - Serious Risk. NERC → Serious Risk: lack of commitment towards CIPs, Vegetation contacts, Repeat conduct, poor Change management, lack of preparedness towards new standards, inadequate training of personnel, failure to validate IROLs and SOLs.
  - Long Settlement
  - Regular NOCV
RAI: Focus on Self-Logging

- Selected Entities, voluntary
- Allows an understanding of the entity’s IAC management practices
- Document minimal risk issues
- Provided to Region quarterly
- Identified issues will be treated as Compliance Exceptions
- Better use of entity and region resources/Reduced administrative burdens
- 14 NPCC entities participate
When determining eligibility for self-logging privileges, the Compliance Enforcement Authority will evaluate the:

- processes and controls the registered entity has in place to identify, assess, and correct noncompliance;
- registered entity’s compliance history;
- the registered entity’s history of self-assessment and self-reporting;
- the registered entity’s history of timely and thorough mitigation;
- the registered entity’s level of cooperation with its Compliance Enforcement Authority during enforcement actions and compliance monitoring activities; and
- the quality of the registered entity’s internal compliance program.
Do’s and Don’ts

1. Entities seeking guidance from NPCC on non-compliance issue
   - NPCC can only provide a preliminary assessment, without verified facts
   - A “determination” on non-compliance issue can only be done by formal disposition of a reported instance of non-compliance. So, when in doubt, the best you can do is to formally report as a Self-report

2. Self-Report, be as descriptive as possible, i.e. details...
   - The extent and duration of violation (Number of devices affected, rating of devices, duration —beginning, and end date-) is essential in determination of the VRF and VSL, but also assessing reliability impact on the system → Risk assessment (minimum, moderate, serious → CE, FFT, →SNOP, NOP )
   - Ensure that other standards have not been violated (i.e. additional Self-Reports)

3. Report violations by Requirement
   - One violation per requirement
   - If you have an additional sub-requirement, just add to it, but make sure that you have mitigating actions in your MP to address it
   - If you have an additional item of the same req./sub-req. after you’ve made your submittal, don’t make a separate Self-Report, but make sure that you provide mitigation through a revised MP (NPCC will prompt the Entity for a revision)
Do’s and Don’ts

1. Provide mitigating activities upon submittal
   - While submittal of a mitigation plan is not required until after a determination of a violation is confirmed, early submittal of a mitigation plan to address and remedy an identified deficiency is encouraged. Submittal of a mitigation plan shall not be deemed an admission of a violation.
   - A self-report without any mitigating activities is to be avoided (at the time of the submittal one should have an idea of how to mitigate the issue)
     - NPCC will ask for one
   - Identify root cause, not direct cause, so that your mitigating activities have a long-lasting effect in preventing recurrence
   - Dissemination of information, training, peer check, creating and retaining documentation of compliance (affidavits are only one example of evidence)
     - Documents must be dated, signed where necessary

2. Self-Identified violations via Self-Report after receiving Notice of Audit
   - Auditors will investigate as planned, if the violated standard is in scope and include their findings in the Audit Report
   - NPCC will compare Self-Report with Audit findings and make a determination
   - NPCC will compare the two reports and process the most appropriate one
     - e.g. dismiss the Self-Report if Self-Report is less comprehensive than Audit Report