

Agenda

Standards Oversight and Technology Committee

August 3, 2017 | 2:00-3:00 p.m. Eastern
Conference Call

Dial-in: 1-888-352-6803 | Conference Code: 1387509
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Call to Order

Introductions and Chair's Remarks

NERC Antitrust Compliance Guidelines

Agenda Items

1. Minutes* — Approve
 - a. May 10, 2017 Meeting
2. Registered Entities and ERO Enterprise IT Applications* — Update
3. CIP-013-1 – Cyber Security - Supply Chain Risk Management* — Update
4. Reliability Standards Quarterly Status Report* — Review
5. 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

Standards Oversight and Technology Committee

May 10, 2017 | 8:30–9:30 a.m. Central

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

Mr. Kenneth G. Peterson, Chair, called to order a duly noticed meeting of the Standards Oversight and Technology Committee (the “Committee”) of the Board of Trustees (“Board”) of the North American Electric Reliability Corporation (“NERC”) on May 10, 2017, at 8:30 a.m. Central, and a quorum was declared present. The agenda is attached as **Exhibit A**.

Present at the meeting were:

Members

Kenneth G. Peterson, Chair
Kenneth W. DeFontes, Jr.
David Goulding
Roy Thilly

Board Members

Janice Case
Gerry W. Cauley, President and Chief Executive Officer
Robert G. Clarke
Frederick W. Gorbet
Deborah S. Parker
Jan Schori

Committee Member Not Present

George S. Hawkins

NERC Staff

Charles A. Berardesco, Senior Vice President, General Counsel, and Corporate Secretary
Tina Buzzard, Associate Director
Howard Gugel, Senior Director of Standards
Stan Hoptroff, Vice President, Chief Technology Officer, and Director of Information Technology
Mark Lauby, Senior Vice President and Chief Reliability Officer
Ken McIntyre, Vice President and Director of Standards and Compliance
Marcus Sachs, Senior Vice President and Chief Security Officer
Janet Sena, Senior Vice President and Director of Policy and External Affairs
Michael Walker, Senior Vice President and Chief Financial and Strategic Development Officer

NERC Antitrust Compliance Guidelines

Mr. Peterson directed the participants’ attention to the NERC Antitrust Compliance Guidelines included with the agenda materials, and stated that any additional questions regarding these guidelines should be directed to Mr. Berardesco.

Minutes

Upon motion duly made and seconded, the Committee approved the minutes of the February 8, 2017 meeting as presented at the meeting.

Registered Entities and ERO Enterprise IT Applications

Mr. Hoptroff provided an overview of the ERO Enterprise IT projects that were focused on registered entity interactions as well as the ERO Enterprise, referencing the detailed materials that had been included in the advance agenda package. With respect to projects focused on registered entity interactions, he reviewed completed projects and those underway, including an update of the NERC website and the entity registration application. He reviewed ongoing and planned ERO Enterprise projects, focusing on the CMEP technology program, summarizing the program objectives and current activities, including requirements gathering, RFP development and selection criteria. Mr. Hoptroff provided an update on E-ISAC related projects, including the enhanced portal platform and CRISP data management tools.

Mr. Hoptroff provide an overview of the IT projects costs benefits initiative, summarizing categories of analysis and the scorecard for key projects. He then reviewed planned 2017-2018 IT-related expenditures and projections for 2019-2010. Mr. Hoptroff finished his presentation by reviewing key priorities looking ahead.

Guidelines and Technical Basis

Mr. Gugel provided an overview of the Guidance and Technical Basis (“GTB”) information included as background for some standards, noting that the purpose of GTB was to allow a standard drafting team to articulate the technical basis for requirements, but not to provide specific guidance on compliance with requirements (the original GTBs contained a disclaimer to this effect). He noted that confusion as to the purpose of GTB had developed over time, and that NERC staff was working with the Standards Committee to provide additional clarity and to present the results of that effort to this Committee at its August meeting.

Cyber Security Supply Chain Risk Management Standard

Mr. Gugel provided an update on the development of the cyber security supply chain standard, noting the low approval vote in the initial ballot. NERC staff and the Standards Drafting Team worked to understand the comments, and conducted outreach to industry, and will be posting a new standard that seeks to address the comments, using a risk-based approach that focuses on high and medium risk cyber assets. Draft implementation guidance will be posted with the next draft. Management and the Standard Drafting Team expect a much higher approval vote in the next ballot, and management and the Standards Committee are prepared to continue to work to have the proposed standard presented at the Board’s August meeting.

Reliability Standards Quarterly Status Report

Mr. Gugel presented the Reliability Standards Quarterly Status Report, referencing the detailed materials that had been included in the advance agenda package. He reviewed the status of FERC standards-related directives and the schedule for the upcoming submission of standards to the Board; he also noted that the information on the trend of the actual number of requirements is being updated

to provide more useful information, and should be included in the next quarterly report. Mr. Gugel noted that more information on the cost effectiveness initiative will be presented at the MRC meeting.

In response to a question from the Chair, Mr. Murphy provide an update on the enhanced periodic review effort, which he noted is moving at a measured pace and overall working well.

Adjournment

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

Submitted by,



Charles A. Berardesco
Corporate Secretary

Registered Entities and ERO Enterprise IT Applications Update

Action

Information

Background

At the May 2017 SOTC open meeting, management provided an update on projects currently planned or underway for the following groups:

- Registered Entities
- ERO Enterprise
- Electricity Information Sharing and Analysis Center (E-ISAC)

Since the open meeting in May, one E-ISAC project, a data repository to be used by the E-ISAC to analyze data gathered by the Cybersecurity Risk Information Sharing Program, has been completed.

Other projects currently underway include the implementation of a new portal platform for the E-ISAC, a new system to enable the registration and management of registered entities, a new portal for submitting and managing misoperations data, and search improvements to NERC's public-facing website.

NERC continues to make progress on the selection and implementation of a new technology solution and process changes for the Compliance Monitoring and Enforcement Program (CMEP). The Electric Reliability Organization Technology Leadership Team is focused on ensuring the value exists for such an investment to merit implementation of a common tool. Investments in this area will be analyzed through the review of a detailed business case by the CMEP Technology Program Executive Committee, whose membership consists of Lane Lanford (Texas RE), Tim Gallagher (ReliabilityFirst), Ed Schwerdt (NPCC), Gerry Cauley (NERC), and Stan Hoptroff (NERC).

The CMEP Technology Project is focused on the following key objectives:

- Implement best practices and professional standards, where applicable, across planning, fieldwork, reporting, and quality assurance;
- Share and analyze data and information for risk-informed compliance oversight across the ERO Enterprise;
- Align common CMEP and Organization Registration and Certification Program (ORCP) business processes across the ERO;

- Provide easier data entry, better access to information, automated workflows, and greater collaboration; and
- Reduce overall enterprise costs for CMEP related applications.

In addition, the CMEP Technology Project is expected to provide the following key benefits:

- Single, common interface for registered entities.
- Improved consistency with common CMEP and ORCP processes .
- Increased capability supporting risk-based approach to CMEP.
- Increased productivity through automated, standardized workflows.
- Improved analytics through shared data and information.
- Enhanced quality assurance and oversight.
- Reduced application costs across the ERO Enterprise.

In 2017 and the coming years, management will continue to place emphasis on IT project cost benefits, registered entity and Regional Entity applications and infrastructure, NERC's public-facing website, and the CMEP Technology Project. In addition, management will continue to focus on improving and enhancing the ERO's analytical capabilities through enhancing the gathering, refining, and managing of reliability data.

The 2017 budget and 2018 budget submission is primarily focused on two key new functionality initiatives, Entity Registration and CMEP, as discussed above. Items forecasted in the 2019–2020 budget include additional functionality for Entity Registration, the CMEP Technology Project, Wind GAR, Alerts, and replacement or re-write of the Reliability Coordinator Information System.

Further, management will continue to manage and deliver IT projects supporting NERC's E-ISAC business needs. Projects include the delivery of enhancements to a new stakeholder and member portal for the E-ISAC, additional tools for communications, e.g., two-way radio frequency devices, and additional tools and equipment for data analytics.

CIP-013-1 – Cyber Security - Supply Chain Risk Management

Action

Information

Summary

On July 21, 2016, the Federal Energy Regulatory Commission (FERC) issued [Order No. 829](#), directing NERC to develop a new or modified Reliability Standard that addresses supply chain risk management for industrial control system hardware, software, and computing and networking services associated with Bulk Electric System (BES) operations. FERC established a filing deadline of one year from the effective date of Order No. 829, which is September 27, 2017.

Following the issuance of Order No. 829, NERC staff and the Standards Committee initiated [Project 2016-03](#) to develop a supply chain risk management standard, which NERC expects to present to the NERC Board of Trustees (Board) for adoption at the August 10, 2017 meeting. A summary of the status of the standard development will be provided.

The Board has requested policy input from the Member Representatives Committee (MRC) on: (1) how NERC should support effective implementation of the new and modified standards, (2) how NERC should evaluate the effectiveness of the standards going forward, (3) whether NERC should continue to review the risk of not including low impact BES Cyber Systems, and (4) if there are actions NERC should take to address additional potential supply chain risks. A summary of the policy input will be provided at the August 9, 2017 MRC meeting.

Reliability Standards Quarterly Status Report

Action

Information

Background

Attached is the Reliability Standards Quarterly Status Report. Highlights include:

- **Standards Development Forecast**
 - Forecasts the NERC Reliability Standards anticipated for completion and submission to the NERC Board of Trustees for adoption through May 2018. This section also includes a listing of all standards development projects with regulatory directives.
- **Regulatory Directives Update**
 - Provides a summary of standards-related FERC directives and details NERC filings to FERC in support of standards development. This section provides a summary update based on the previous quarter.
- **Trend in Number of Reliability Standards**
 - Provides analysis of the trends for Continent-wide and Regional Reliability Standards requirements over time and projected through 2027.
- **Standards Committee Report**
 - Provides a summary of Standards Committee activity in the previous quarter.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Agenda Item 4
Attachment
Standards Oversight and
Technology Committee
Meeting August 9, 2017

Reliability Standards

Standards Oversight and Technology Quarterly
Report

August 9, 2017

RELIABILITY | ACCOUNTABILITY



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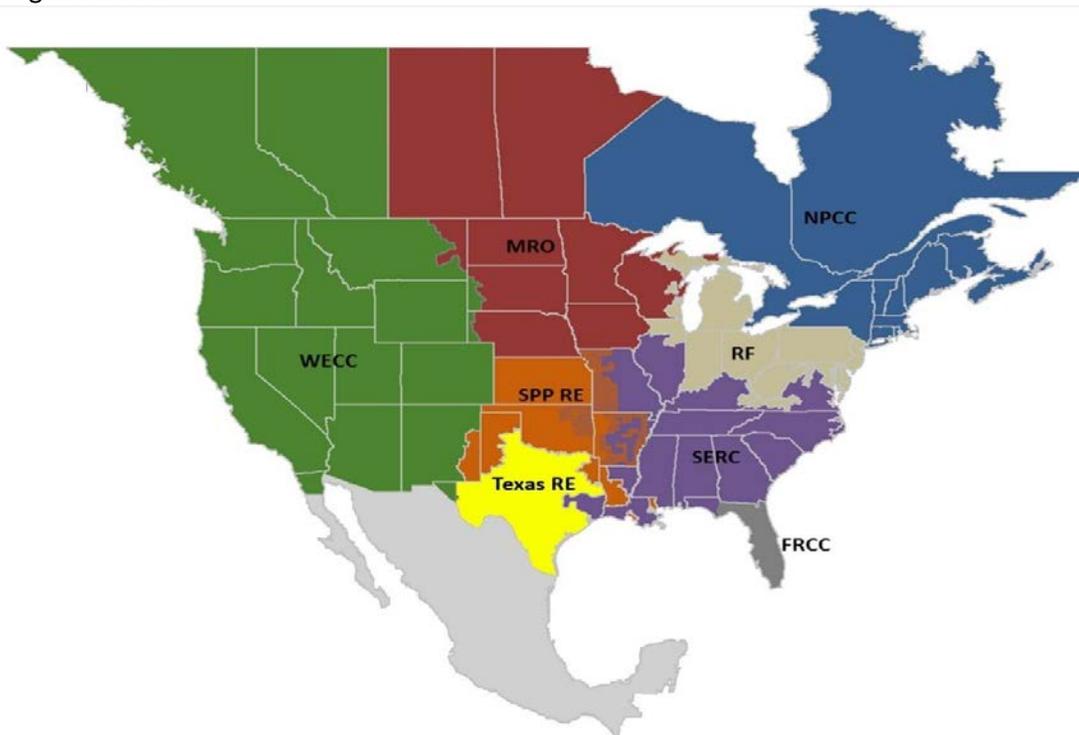
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Preface

The North American Electric Reliability Corporation (NERC) is a not-for-profit international regulatory authority whose mission is to ensure the reliability of the bulk power system (BPS) in North America. NERC develops and enforces Reliability Standards; annually assesses seasonal and long-term reliability; monitors the BPS through system awareness; and educates, trains, and certifies industry personnel. NERC’s area of responsibility spans the continental United States, Canada, and the northern portion of Baja California, Mexico. NERC is the electric reliability organization (ERO) for North America, subject to oversight by the Federal Energy Regulatory Commission (FERC) and governmental authorities in Canada. NERC’s jurisdiction includes users, owners, and operators of the BPS, which serves more than 334 million people.

The North American BPS is divided into the eight Regional Entity (RE) boundaries, as shown in the map and corresponding table below.



The North American BPS is divided into eight RE boundaries. The highlighted areas denote overlap as some load-serving entities participate in one Region while associated transmission owners/operators participate in another.

FRCC	Florida Reliability Coordinating Council
MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
SPP RE	Southwest Power Pool Regional Entity
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

Standards Development Forecast (Continent-wide)

Board Forecast for Standard Projects in Active Development

August 2017

- Project 2016-03: Cyber Security Supply Chain Management

November 2017

- None

February 2018

- Project 2015-09: Establish and Communicate System Operating Limits (FAC-010, FAC-011, FAC-014)
- Project 2016-02: Modifications to CIP Standards (Revisions related to Control Center and Communications Networks Directives)

May 2018

- Project 2013-03: Geomagnetic Disturbance Mitigation (TPL-007)
- 2015-10: Single Points of Failure (TPL-001)
- Project 2016-02: Modifications to CIP Standards (Revisions related to Transition Advisory Group Identified Issues)

Projects with Regulatory Directives

Table 1, below, lists the current projects with regulatory directives. As of June 30, 2017, there were 13 standards-related directives to be resolved through standards development activities. (Not including non-standards related directives).

Table 1: Projects with Regulatory Directives		
Project	Regulatory Directives	Regulatory Deadline
Project 2013-03 Geomagnetic Disturbance Mitigation	4	6/4/2018
Project 2015-09 Establish and Communicate System Operating Limits	2	N/A
Project 2015-10 Single Points of Failure	2	N/A
Project 2016-02 Modifications to CIP Standards (Revisions unrelated to Definition of "Low Impact External Routable Connectivity")	2	N/A
Project 2016-03 Cyber Security Supply Chain Management	1	9/27/2017
Project 2017-06 Modifications to BAL-002	2	N/A

Trend in Number of Reliability Requirements

As NERC Reliability Standards continue to mature, NERC analyzes the trend in the total number of requirements in the United States since 2007 when Reliability Standards became enforceable.

The *US Effective Date Status/Functional Applicability*¹ spreadsheet was used to analyze the number of requirements based on the U.S. Effective Date for each requirement shown in the charts below. Figure 1 displays the Trend in Number of Requirement for Continent-wide standards, while Figure 2 displays Regional Reliability Standards.² Standards with variances were not included in the requirement count. Projections from projects that include standards currently under development are also included in the total number of requirements based on their projected effective date.³

The trend for total number of requirements indicates a constant trend line for the last four years, with a slight decline from 2017 to 2018 for Continent-wide standards, and a significant decline in total number of requirements from 2016 to 2017 for Regional Reliability standards. Figure 1 indicates a total of 499 continent-wide requirements; Figure 2 indicates a total of 73 Regional Reliability standards forecast for 2027.

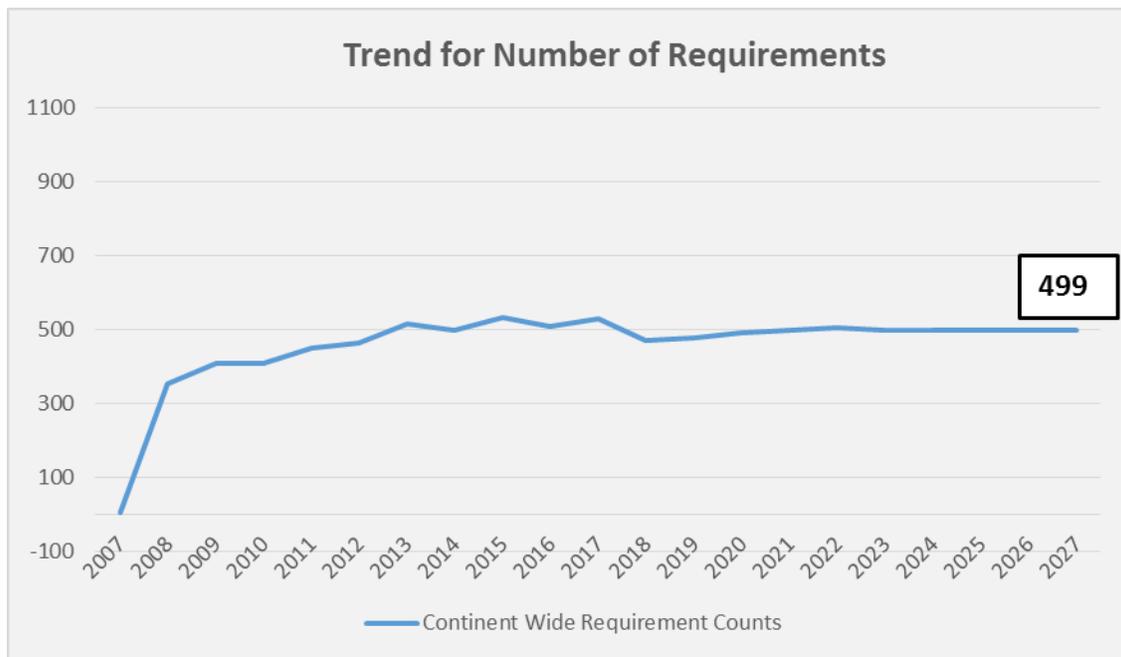


Figure 1: Trend for Number of Requirements for Continent-wide standards

¹ Available from the Standards section of the NERC website: <http://www.nerc.com/pa/Stand/Pages/default.aspx>

² Charts were developed using Q3 2017 data.

³ These projects include the following: Project 2013-03 (TPL-007-2), Project 2016-04 (PRC-025-2), Project 2015-09 (FAC-010-4, FAC-011-4, FAC-014-3), Project 2017-01 (BAL-003-2), Project 2015-10 (TPL-001-5), Project 2017-02 (PER-003-2, PER-004-2), Project 2016-02 (CIP-003-7(i)), Project 2017-06 (BAL-002-3), and Project 2016-03 (CIP-005-6, CIP-010-3, CIP-013-1).

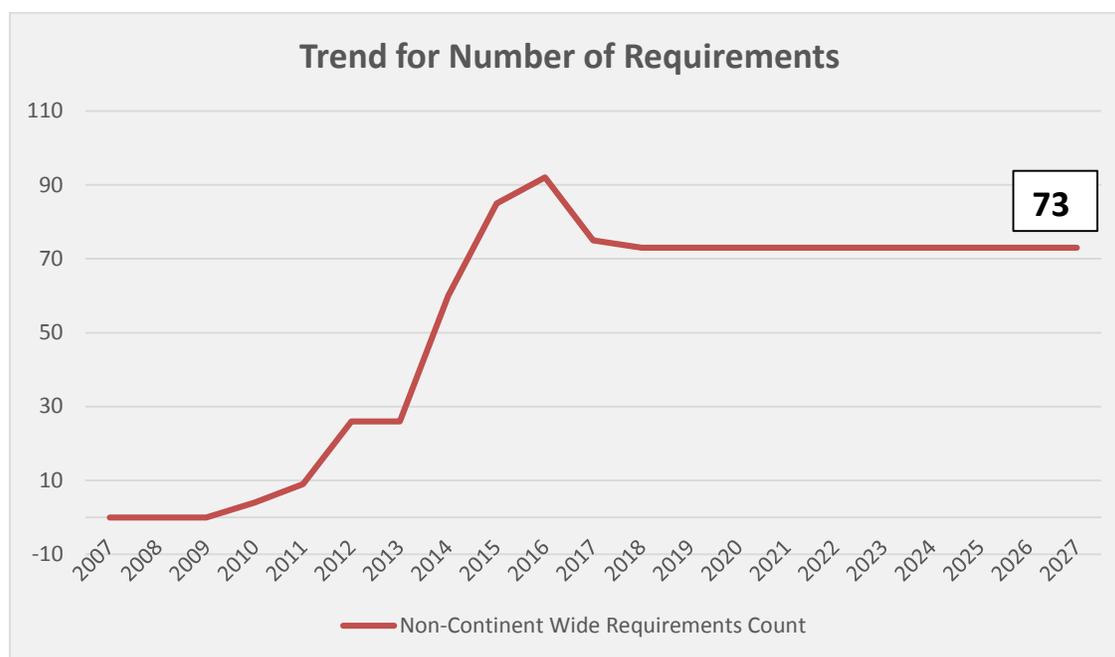


Figure 2: Regional Reliability Standards

Streamlining NERC Reliability Standards

As part of its continuing focus on supporting the success and evolution of NERC Reliability Standards to ensure they appropriately address risks to the bulk power system, NERC is interested in assessing where it may be able to streamline particular Reliability Standards or requirements through retirement or modification that may no longer be necessary. Beginning in the third quarter of 2017, NERC will begin using internal ERO Enterprise resources, potentially augmented with external expert resources, to evaluate an initial potential scope of an effort to evaluate candidates for such review. Based on that initial review, NERC will solicit industry participants to evaluate possible candidate requirements that may no longer be necessary to support reliability or address current risks to the bulk power system. Through open and transparent industry participation, this list will be formed and vetted with industry in similar fashion as prior efforts to retire requirements that were administrative in nature (e.g., the “Paragraph 81” effort). Lessons from both the “Paragraph 81” effort and the Independent Expert Review Panel underscore the importance of moving forward through open discussion and open solicitation for participants. NERC will also coordinate with the industry team to ensure all of the information developed through the 2016 and 2017 Standards Grading efforts, which includes consideration of content, quality, cost, and reliability impact analysis.

Regulatory Update

NERC Regulatory Update- Standards April 1, 2017 – June 30, 2017

NERC FILINGS TO FERC

FERC Docket No.	Filing Description	FERC Submittal Date
RM13-11-000	Informational Filing of NERC Regarding the Light-Load Case Study of the Eastern Interconnection NERC submitted an informational filing in response to a FERC directive in Order No. 794.	6/30/2017
RM15-14-000	Remote Access Study of NERC NERC submitted a report providing the results of a study of the remote access protections required by NERC's Critical Infrastructure Protection (CIP) Reliability Standards.	6/30/2017
RM09-9-000 and RM15-13-000	Informational Filing of NERC Regarding Updates to WECC Website Locations of Linked Tables in Regional Reliability Standards FAC-501-WECC-1 and PRC-004-WECC-2 NERC submits an informational filing regarding updates to the Western Electricity Coordinating Council web locations of certain Tables referenced in the Applicability Section of two mandatory and enforceable Regional Reliability Standards, FAC-501-WECC-1 (Transmission Maintenance) and PRC-004-WECC-2 (Protection System and Remedial Action Scheme Misoperation).	6/9/2017
RR17-5-000	Petition of NERC for Approval of Amendments to WECC Regional RSDP NERC submits a petition for approval of amendments to the Western Electricity Coordinating Council Regional Reliability Standards Development Procedures.	6/8/2017
RM15-11-000	Informational Filing of NERC Regarding the Geomagnetic Disturbance Research Work Plan NERC submits a work plan describing how it will conduct research on geomagnetic disturbance related topics in response to FERC Order No. 830.	5/30/2017
RM17-12-000	Errata to Petition of NERC for Approval of Proposed EOP Reliability Standards NERC submits an errata to petition for approval of proposed Emergency Operations (EOP) Reliability Standards to correct an inadvertent exhibit error filed with FERC on March 27, 2017.	4/28/2017
RM16-20-000	Comments of NERC in Response to PRC-012-2 NOPR NERC submits comments in response to the Notice of Proposed Rulemaking proposing to approve Reliability Standard PRC-012-2 (Remedial Action Schemes).	4/10/2017
RM16-13-000	Response of NERC to Data Request NERC submits its response to FERC's data request seeking additional information in response to NERC's <i>Petition for Approval of Proposed Reliability Standards BAL-005-1 and FAC-001-3</i> .	4/6/2017

FERC ISSUANCES

(any standard development related directives or proposed directives are noted in the summary)

FERC Docket No.	Issuance Description	FERC Issuance Date
RR17-3-000	Letter Order Approving Amendments to the Texas RE Bylaws and RSDP FERC issues a delegated order approving amendments to the Texas Reliability Entity, Inc. bylaws and Regional Reliability Standards development process.	5/30/2017
RD17-5-000	Letter Order Approving Regional Reliability Standard VAR-501-WECC-3 FERC issues a delegated letter order approving Regional Reliability Standard VAR-501-WECC-3 (Power System Stabilizers).	4/28/2017
RD17-4-000	Letter Order Approving Reliability Standards IRO-002-5 and TOP-001-4 FERC issues a delegated order approving Reliability Standards IRO-002-5 (Reliability Coordination - Monitoring and Analysis) and TOP-001-4 (Transmission Operations).	4/17/2017

Standards Committee Report

Background

This report highlights some of the key activities of the Standards Committee (SC) during the second quarter of 2017.

Summary

The Reliability Standards Development Plan (RSDP) is currently out for stakeholder comment. The RSDP has been streamlined based on the progress of addressing outstanding directives, and feedback from stakeholders and the SC. The SC is working closely with NERC staff on the RSDP. The RSDP is scheduled for SC consideration and endorsement at its September meeting, and should be ready to be presented to the Board of Trustees (Board) at the November meeting.

The SC commends the Supply Chain standard drafting team (including its leadership of Corey Sellers from Southern Company and JoAnn Murphy from PJM, as well as Standards Developer Mark Olson and Project Management and Oversight Subcommittee Liaison Brenda Hampton from Vistra Energy) on their diligent work to provide the Board with a stakeholder-approved Reliability Standard.

The SC is also pleased to report (in part, due to the work of its leadership and NERC staff) that the SC has endorsed a policy related to technical rationale and guidance developed during the Reliability Standards development process. This policy will be presented to the Member Representatives Committee (MRC).

Lastly, the SC and NERC staff have started a number of new periodic reviews (FAC-008, INT-004, INT-006, INT-009, INT-010, and NUC-001-3) that will be informed by the grading of standards, the second set of which is also underway for those eligible to be graded in 2017.