

Reliability Standards Development Plan

Steven Noess, Director of Standards Development
Standards Oversight and Technology Committee Meeting
November 1, 2016

RELIABILITY | ACCOUNTABILITY



- Shifting focus in standards development:
 - Through 2016: reaching steady state
 - 2017 and beyond: standards grading and Enhanced Periodic Reviews (EPRs)
- Key elements for prioritization:
 - Grading of Standards
 - EPRs
 - Cost Effectiveness Pilot
 - Emerging risks
 - Federal Energy Regulatory Commission (FERC) directives
 - Synchronizes with Reliability Issues Steering Committee (RISC) rankings

- Modeled after Independent Expert Review Panel template
 - Content
 - Quality
- Standing Team
 - Chairs of Operating Committee (OC), Planning Committee (PC), and representatives from NERC and Regions
 - Meetings facilitated by Chair of the Standards Committee (SC)
- Informed by stakeholder input
- Grades are input into Enhanced Periodic Reviews and attached to RSDP

Standards graded from the 2016-2018 RSDP

- BAL-001
- FAC-008-3
- PRC family
- INT
 - INT-004
 - INT-006
 - INT-009
 - INT-010
- EOP
 - EOP-010
 - EOP-011
- VAR:
 - VAR-001
 - VAR-002
- PER
 - PER-001
 - PER-003
 - PER-004

- Remaining standards graded in 2017
- Changes to standards regraded by standing team to ensure sustained or improved content and quality



Questions and Answers

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Cost Effectiveness Pilot Update

Howard Gugel, Senior Director of Standards and Education
Standards Oversight and Technology Committee Meeting
November 1, 2016

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- History
- Phase 1 pilot results
- Future pilot plans

- NPCC process
- NERC Cost Effectiveness Analysis Procedure
- 2015 policy input

- Desire for cost consideration in development
 - Ballot was indirect method
 - Need expressed for direct measurement
- Order of magnitude approach
 - Specific entity cost difficult to estimate
 - Flexibility in how to comply
 - Balance of cost versus risk

- TPL-001-4
- Survey posted late April for 30 days
- Results posted on project page
- Project initiation in Q4

- Short duration outages
- Long lead-time equipment

- Phase 2 potential pilots
 - Project 2015-10 Single Points of Failure TPL-001
 - Project 2015-09 Establish and Communicate System Operating Limits
 - Project 2016-04 Modifications to PRC-025-1
- Phase 1 additional pilots to be determined



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Reliability Standards Quarterly Status Report

Steven Noess, Director of Standards Development
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- Twelve standards related directives in progress

| Projects with Regulatory Directives | | |
|---|------------------------------|----------------------------|
| Project | Regulatory Directives | Regulatory Deadline |
| Project 2013-03 Geomagnetic Disturbance Mitigation | 4 | 6/4/2018 |
| Project 2015-08 Emergency Operations | 1 | N/A |
| Project 2016-02 Modifications to CIP Standards (Revisions to Definition of “Low Impact External Routable Connectivity”) | 1 | 3/21/2017 |
| Project 2016-02 Modifications to CIP Standards (Revisions unrelated to Definition of “Low Impact External Routable Connectivity”) | 2 | N/A |
| Project 2016-01 Modifications to TOP and IRO Standards | 3 | 7/27/2017 |
| Project 2016-03 Cyber Security Supply Chain Management | 1 | 9/27/2017 |

- November (2 planned)
- February 2017 (3 planned)
- May 2017 (1 planned)
- August 2017 (1 planned)

- 2017-2019 Reliability Standards Development Plan (RSDP) endorsed
- Standards metric (grading) added to RSDP to inform Enhanced Periodic Reviews

- Background
 - NERC directed on July 21, 2016 to address supply chain risks to Bulk Electric System (BES) control systems and networks
 - September 2017 filing deadline
- Status
 - Standards development underway
 - Technical conference in Atlanta on November 10, 2016
 - Initial posting is expected in Q1 2017
 - Targeting NERC Board of Trustees consideration at or before the August 2017 meeting

- Background

- FERC approved TPL-007-1 on September 22, 2016
 - TPL-007-1 requires GMD vulnerability assessments and mitigation for a 1-in-100 year benchmark GMD event
 - NERC directed to develop modifications and conduct GMD research
 - May 2018 filing deadline

- Status

- Standard Authorization Request (SAR) posted in October 2016
- Work plan required for GMD research objectives:
 - NERC coordinating with GMD Task Force (GMDTF) leaders, Electric Power Research Institute, and research partners
 - NERC must file the GMD work plan with FERC by May 2017

- Research activities include:
 - Sensitivity analysis on “spatial averaging” and “scaling factors” approach
 - Improving the earth conductivity model (1D)
 - Study “worst-case” geomagnetic field orientation thermal impact on transformers
 - Further analysis on transformer heating due to geomagnetically induced current (e.g., tertiary windings)
- Additional NERC activity includes:
 - Implement data collection and sharing system for monitoring devices
 - Develop tool for calculating geo-electric fields and transformer thermal response
 - Improve harmonic analysis capability



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ERO Enterprise and NERC IT Projects Update

Stan Hoptroff, Vice President and Chief Technology Officer
Standards Oversight and Technology Committee Meeting
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- Registered Entities IT Projects
- ERO Enterprise IT Projects
- E-ISAC IT Projects
- E-ISAC Industry Updates
- NERC Corporate IT Projects
- IT Projects Completing in 2016
- 2017–2018 Major Ongoing Initiatives

- User Management and Records (UMR)
 - Improve client experience, reduce complexity, and reduce support risk
- GADS – Wind Turbine Generation
 - 1600 Data Request (collect, report, analyze)
- Public-facing Website
 - ERO Enterprise Effectiveness Survey results
 - Usage and navigation analysis (70 percent of visitors are accessing Standards)
- Standards Balloting – Release 4
 - Requested enhancements

- Enterprise Reporting – Generation Data
 - Enable ERO Enterprise data access and analysis
- Compliance Monitoring and Enforcement Program (CMEP)
 - Steering Committee active; solution references and professional services selection underway

- E-ISAC Portal Enhancements and Support
 - Members Executive Committee requested features and improvements with a final release on November 14, 2016
 - Cybersecurity Risk Information Sharing Program (CRISP) data management repository, analytical tools, and processes
- E-ISAC Cybersecurity Automation
 - Implementation of machine-to-machine communications pilot (STIX/TAXII)

- Industry Engagement via the E-ISAC Portal
 - Voluntary sharing of threat or vulnerability observations
 - Requests for assistance and guidance
 - Discussion of the impact of emerging cyber and physical issues
- Insights from CRISP Analytics (How does this data become actionable?)
 - Improved access to “low-side” (unclassified) for E-ISAC analysts
 - Ability to use scripting and programming to generate alerts
 - Intelligence derived from low-side CRISP analytics is sharable via the STIX/TAXII initiative
 - Two-way analysis discussion between E-ISAC and CRISP users

- Document Management Program
 - Document control, retention, security, and collaboration
 - IT, HR, Finance, Legal and Policy and External Affairs online
- Audio/Visual Program
 - Ease of use, security, reliability, and reduced travel
- Information Security
 - Email encryption
 - Network architecture update

- Misoperation Data Capture
 - 1600 Data Request
- Events Analysis – Release 2
- E-ISAC Network Segmentation
 - Separate physical and logical network in support of separation protocol
- Standards Balloting – Release 3

- Public Website Enhancements – Registered Entities
- Registration Application – Registered Entities
- CMEP Technology Program
- Enterprise Reporting – Event, Misoperations, and Transmission Data
- E-ISAC Portal Platform
- E-ISAC Cybersecurity Automation
- Additional CRISP Analytical Capabilities
- UMR Release 2
- SOCCED – Registered Entities



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