Standards

Howard Gugel, Senior Director of Standards and Education
Board of Trustees Meeting
August 16, 2018
Supply Chain Update
• Support effective and efficient implementation (e.g. CIP V5 transition)
• Supply chain risk study
• Communicate supply chain risks to industry
• Forum and Association white papers
• Plan to evaluate effectiveness of supply chain standards
NERC used EPRI to conduct risk study

- Assessment of product/manufacturer types used on the BES
- Analysis and applicability to BES Cyber Assets
- Analysis of best practices and standards in other industries to mitigate supply chain risks
- Analysis of generalized vendor practices and approaches used to mitigate supply chain risks
REMOTE TERMINAL UNIT VENDORS

Vendor 1
Vendor 2
Vendor 3
Vendor 4
Vendor 5
Vendor 6
Vendor 7
Vendor 8
Energy Management System Vendors

Vendor A
Vendor B
Vendor C
Vendor D
Others
- Off-premise supplier services (cloud)
- Third-party accreditation processes
- Secure hardware delivery
- Provenance
- Threat modeling
• Assess supply chain deficiencies
• Recognize external dependencies
• Policy for handling supplied products or services that do not adhere to procurement processes
• Unsupported or open-sourced technology components
• Process for concluding supplier relationships
Applicability of CIP-013-1

- Low impact and not subject to CIP-013: 79%
- High or medium BCS: 21%

- Only low impact BCS
- High or medium BCS
• Applying Industry Practices and Guidelines
  ▪ Third-party accreditation processes
  ▪ Secure hardware delivery
  ▪ Threat-Informed Procurement Language
  ▪ Unsupported or open-sourced technology components

• Use supply chain controls to mitigate common-mode vulnerabilities

• Assess the risks through data analysis
  ▪ Pre-Audit surveys and questionnaires
  ▪ Targeted outreach to vendors
  ▪ Develop standardized vendor supply chain practices
  ▪ Independent testing of legacy applications and products
• Forums and Associations developed white papers
• NERC to post white papers on supply chain standard webpage
• NERC, Forums and Associations to jointly present papers to industry
Standards Efficiency Review
• Create project page on NERC website – Complete
• Advisory Team finalize scope, criteria, and approach – Complete
• Solicit industry experts for review teams – Complete
• Present scope and approach to Standards Committee – Complete
• Assemble review teams – Complete
• Review teams submit draft SARs for comment – Complete
• SER submits revised SAR to Standards Committee (2018 Q3)
• Industry ballots on proposed retirements/modifications to standards (2018 Q3 – 2018 Q4)
• Propose balloted standards to NERC Board of Trustees – 2018 Q4 to 2019 Q1 (changes limited to retirements)
Phase 1:
- Focused primarily on straight-forward retirements
- Draft SAR posted for informal industry comment proposed ~114 requirements for retirement
- Phase 1 work complete for team upon submitting SAR

Phase 2:
- Alternatives to retirement
- Consolidation of requirements
- Modifications of requirement or dependent on another
- CCC and SC members to supplement SER team
• Phase 2 team created by supplementing with new CCC and SC members (2018 Q3)
• Clarify scope of work for Phase 2 (2018 Q3)
• Review alternatives and concepts proposed by Phase 1 (2018 Q3)
• Vet recommendations and proposals made by SER Phase 2 2018 Q4)
Standards Actions
• Response to FERC Order 835
• Reliability Benefits
  ▪ Exemption requires
    ○ Energy Emergency Alert level procedures
    ○ Notification to Reliability Coordinator
    ○ ACE recovery plan, including target recovery time
• Action
  ▪ Adopt BAL-002-3 – Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event
• Response to FERC Order 822
• Reliability Benefits
  ▪ Protects sensitive BES data communicated between BES Control Centers
  ▪ CIP Exception Circumstances
  ▪ Applies to all impact levels (High, Medium, Low)
• Action
  ▪ Adopt CIP-012-1 – Cyber Security – Communications between Control Centers
• Result of periodic review
• Duplicative Variance Requirement eliminated
• Minor conforming language changes
• Action
  ▪ Adopt VAR-001-5 – Voltage and Reactive Control
Questions and Answers
Reliability Coordination in the Western Interconnection

Melanie Frye
President and Chief Executive Officer
Recent Developments

• Joint WECC-NERC Letter to BAs/TOPs
  – September 4 deadline for entities to tell WECC of plans for RC service
  – Entities must obtain/maintain service from a certified, registered RC
  – Entities’ ultimate responsibility for success

• SAR
  – Seeks Regional Variance to IRO-002-5:
    (1) model entire WI
    (2) model all RAS

• RC Forum
  – Held two webinars and one in person for stakeholders to discuss RC issue

• Peak
  – Announced “wind down” effective 12/31/2019 and dissolved agreement with PJM Connext
RC Certification Timelines

**CAISO**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>2018</td>
<td>RC Application Submitted</td>
<td>Feb 18, 2018</td>
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<tr>
<td>2019</td>
<td>CT On-site visit</td>
<td>March 2019</td>
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<tr>
<td>2019</td>
<td>Shadow operations (BA footprint only)</td>
<td>May 2019</td>
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<tr>
<td>2019</td>
<td>Go-live Date (BA Footprint only)</td>
<td>July 1, 2019</td>
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<tr>
<td>2019</td>
<td>Go-live for New Members</td>
<td>Q3*</td>
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<tr>
<td>2019</td>
<td>End of 2019 Peak RC ceases operation</td>
<td>End of 2019</td>
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**SPP**

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<tr>
<th>Year</th>
<th>Event</th>
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<td>2018</td>
<td>RC Application Submitted</td>
<td>Jun 20, 2018</td>
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<tr>
<td>2019</td>
<td>CT On-site Visit</td>
<td>July/Aug 2019</td>
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<td>2019</td>
<td>Shadow Operations</td>
<td>Q3/Q4</td>
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<tr>
<td>2019</td>
<td>Go-live for New Members</td>
<td>Late Q4</td>
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<tr>
<td>2019</td>
<td>End of 2019 Peak RC ceases operation</td>
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Geomagnetic Disturbance Data Request

John Moura, Director, Reliability Assessment and System Analysis
Board of Trustees Meeting
August 16, 2018
• Section 1600 Data Request for Geomagnetic Disturbance (GMD) Data addresses FERC Order No. 830 directives
• Development steps required by Section 1600 complete
  ▪ Proposed data request provided to FERC in January 2018
  ▪ Posted for 45-day comment period February 7 – March 26, 2018
  ▪ Comment responses posted on NERC website
• NERC Planning Committee (PC) endorsed on June 5, 2018
• NERC will collect geomagnetically-induced current (GIC) monitoring and magnetometer data for strong GMD events
  ▪ Request includes historical (2013 to present) and future GMD events
  ▪ NERC will designate collection periods in coordination with U.S. Space Weather Prediction Center (SWPC)
  ▪ Technical specifications developed by the Geomagnetic Disturbance Task Force (GMDTF) and align with existing industry GMD data capabilities

• Data supports GMD model validation and research applications
  ▪ NERC will make data available to researchers
• Transmission Owners and Generator Owners with GIC and/or magnetometer data are applicable reporting entities
  ▪ Reports are not required for entities that do not collect data
  ▪ Non-U.S. entities are not obligated to participate but are encouraged
• Reporting threshold provides useful data with minimal burden
  ▪ Strong GMDs average 200 times per 11-year solar cycle
• Data will be collected by annual electronic submission
  ▪ NERC will develop a technology application for collecting GMD data
  ▪ Anticipate beginning collection in 2020
• NERC does not anticipate that requested GMD data will contain Confidential Information as defined in Section 1501
  ▪ Consistent with FERC’s determination in Order No. 830
• Reporting Entities can request confidential treatment and specify:
  ▪ Category or categories of the information under section 1501
  ▪ Reasons why the information is believed to be confidential
• NERC will make a determination consistent with definitions in Section 1501 and FERC Order No. 830 guidance
• Authorize NERC to issue the Section 1600 Data Request for GMD Data
Questions and Answers