

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Registered Entities and ERO Enterprise IT Applications Update

Stan Hoptroff, Vice President, Chief Technology Officer and Director of
Information Technology

Standards Oversight and Technology Committee Meeting

August 3, 2017

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- Compliance Monitoring and Enforcement Program (CMEP)
Technology Project – Program objectives and current activities
- Entity Registration: Coordinated Functional Registrations (CFRs)
- ERO Portal: Misoperations data management
- Public Facing Website
- Electricity Information Sharing and Analysis Center (E-ISAC)
Portal Upgrade Update
- Priorities Looking Ahead

- Supports ERO Enterprise Goals
 - Risk Informed CMEP (Goal 2)
 - Reduction of Known Risks to Reliability (Goal 3)
 - Efficiency and Effectiveness (Goal 6)
 - Consistency
 - Productivity
 - Security
- Financial Constraint – Flat, inflationary budgets in the future
- Tactical Constraint – Workload becoming more complex (Critical Infrastructure Protection)

- Single, common portal for registered entities, enabling consistency of experience
- Real-time access to information, eliminating delays and manual communications
- Improved capability to support the Risk-Based Compliance Oversight Framework
- Enhanced quality assurance and oversight, enabling consistent application of the CMEP
- Improved analytics, including visibility into compliance and reliability risks

- Increased capability to implement audit best practices and processes
- Standardization and implementation of common business processes and workflows, enabling increased productivity (estimated 15 percent gain for ERO Enterprise CMEP staff)
- Reduced application costs across the ERO Enterprise (\$320k annual savings)
- Investment break-even within five years

- Implement common ERO Enterprise solution – supports ERO strategic goals (recommended option)
- Maintain status quo – will not meet future business requirements
- Regions implement individual, new systems of their choosing – more costly than a common system, inconsistent with ERO Enterprise strategic direction

- Unanimous support from all Regional CEOs for Enterprise option
- Regions deferred investments in lieu of the Enterprise option
- Enterprise option meets strategic goals within constraints

- Data gathering and development of Business Case
- Technology Leadership Team review
- Webinar completed
- Workshops and requirements validation – August 1-3
- Standards Oversight and Technology Committee (SOTC) Review
- August 3

- Finance and Audit Committee (FAC) 2018 Budget Review - August 9
- August/September/October – Compliance and Certification Committee (CCC), Member Representatives Committee, Business Plan and Budget Input Group Briefings, and other Stakeholder Outreach activities
- Final Business Case Briefings - SOTC, Board of Trustees Compliance Committee (BOTCC), FAC, and Board of Trustees (Board) meetings - October/Nov 2017
- Vendor RFP and selection process – September 3–January 22

- Estimated Capital Investment: \$5.1M, completing in 2020
- Estimated Annual Operating Costs: \$780k per year
- Estimated average productivity gains for approximately 200 ERO Enterprise staff: ~15 percent in 2022 and beyond
- Estimated point where benefits exceed costs: End of Year 2021

- Selected consultant with experience with both the ERO Enterprise and CMEP-type software solutions
- Monthly project financial reviews
- Tollgates at each phase to review status and issues: (Analyze, Design, Develop, Test, Deploy)
- Ongoing financial reporting (FAC quarterly financial reports)
- Periodic updates to other Board Committees (SOTC, BOTCC, CCC)

- **Benefits**
 - Consistent and consolidated processes and terminology
 - Workflow automation for common CFR tasks
 - Provide a common source of record for CFR information to Regions, registered entities, and NERC
 - Improve registered entity visibility of standards changes that impact CFR participants and require updates
 - Enhance Region and NERC CFR oversight capabilities through new reporting and analysis functions

- Status
 - Development underway (62 percent complete)
 - Go Live: November 2017

- Benefits
 - Increase efficiency and improve data quality
 - Reduce corporate risk
 - Increase data visibility
 - Increase security

- Status
 - Development underway (55 percent complete)
 - Go Live: October 2017

- **Benefits**
 - Search optimization - more relevant results
 - Platform upgrade for stability and continued support from Microsoft
 - More efficient content publishing capability

- **Status**
 - Requirements and Design complete; environment upgrade underway (overall 27 percent complete)
 - Go Live: September 2017

- **Benefits**
 - Extensible commercial off-the-shelf content management system
 - Significantly improved user interface and experience
 - Enhanced discoverability with robust search and group collaboration
 - Personalized experience with tagging and content feedback ratings
 - Support for STIX/TAXII data and third party application integrations
- **Status**
 - Members Executive Committee demo scheduled for late August
 - Go Live: planned for Q4

- CMEP Technology Project
- Entity Registration
- E-ISAC Portal Upgrade

A map of North America, including the United States and Mexico, is shown with various regions highlighted in different colors. The colors include green, red, blue, orange, purple, yellow, and grey. The text "Questions and Answers" is overlaid in the center of the map.

Questions and Answers

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Supply Chain Risk Management

Howard Gugel, Senior Director of Standards and Education
Standards Oversight and Technology Committee Meeting
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- Background
 - FERC issued Order No. 829 on July 21, 2016
 - Standard must be filed by September 2017
- Status
 - Final ballot ended July 20, 2017
 - CIP-013-1 – 84.2%
 - CIP-005-6 – 88.8%
 - CIP-010-3 – 81.4%
 - Present at August Board of Trustees meeting
 - FERC filing deadline of September 27, 2017

- High and medium impact BES Cyber Systems
- No requirements for low impact BES Cyber Systems
- NERC committed to addressing risks appropriately
 - Identify best practices
 - Develop guidance resources
 - Support common understanding of compliance obligations

- How should NERC support effective implementation?
- How should NERC evaluate effectiveness of the standards going forward?
- Should NERC continue to review the risks from low impact cyber assets?
- Are there actions NERC should take to address additional potential supply chain risks?

- Industry education and outreach on supply chain standards
- Vendor outreach on supply chain standards
- Engage NERC technical committees
- E-ISAC data collection
- Effectiveness survey 18 to 24 months after implementation

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Questions and Answers

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Reliability Standards Quarterly Status Report

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- 13 standards related directives in progress

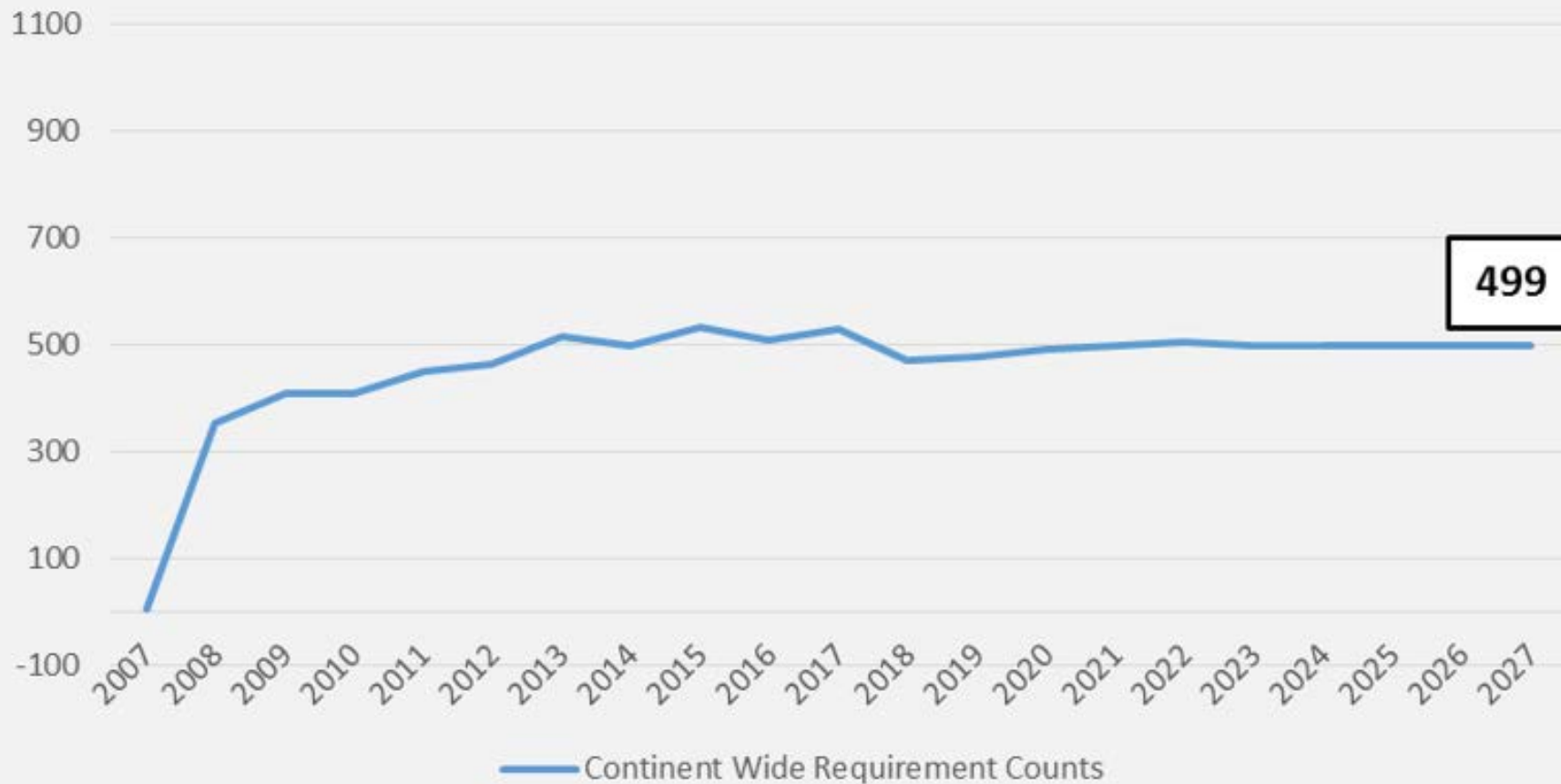
Project 2013-03 Geomagnetic Disturbance Mitigation	4	6/4/2018
Project 2015-09 Establish and Communicate System Operating Limits	2	N/A
Project 2015-10 Single Points of Failure	2	N/A
Project 2016-02 Modifications to CIP Standards (Revisions unrelated to Definition of "Low Impact External Routable Connectivity")	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

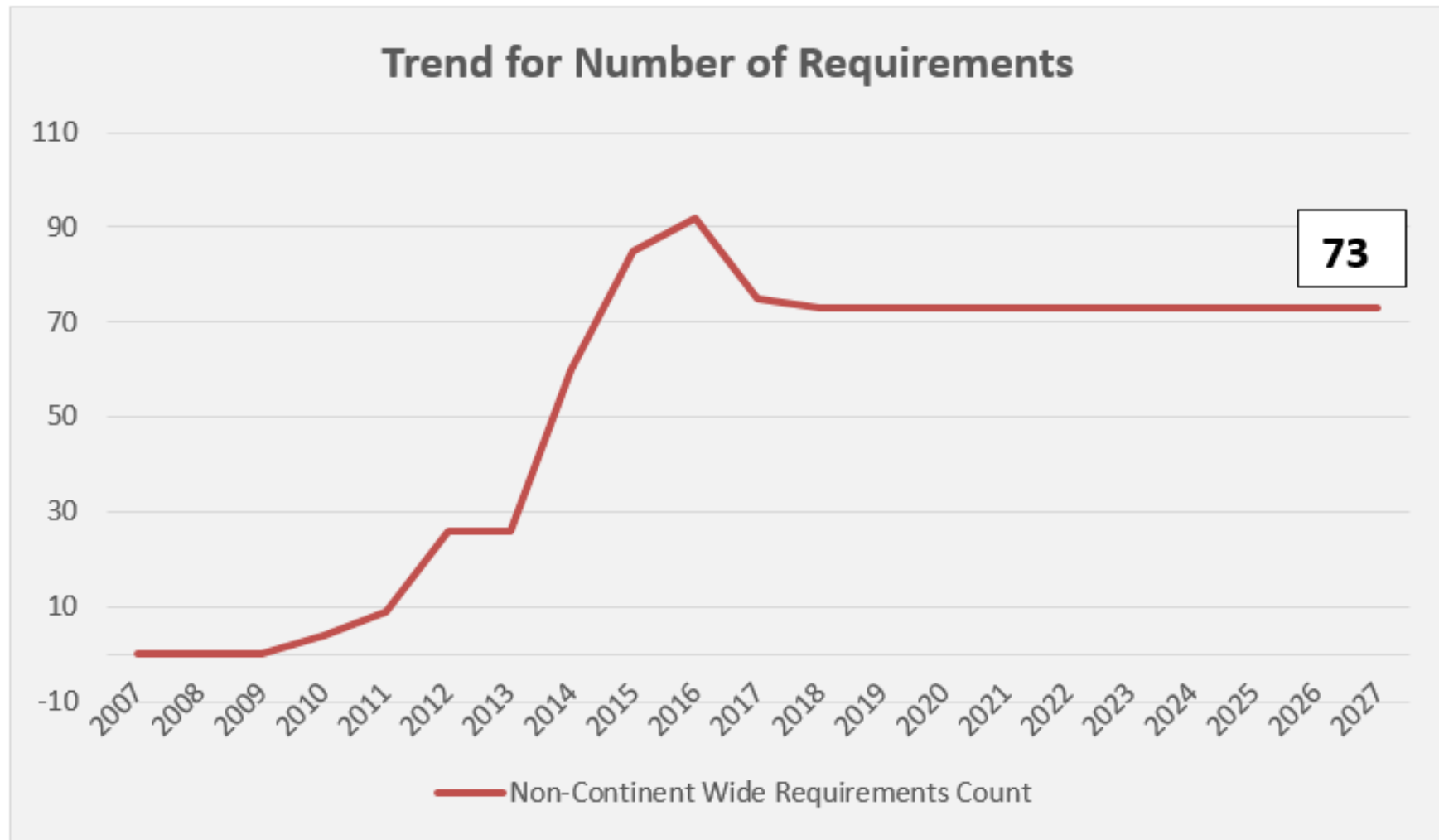
- Evaluate the potential scope of the project – 2017 Q3
- Expert team assembled to compile candidate list - 2017 Q4
- Candidate list provided to industry for comment/ballot – 2018 Q1
- Proposed retirements to NERC Board of Trustees – 2018 Q2 or Q3
- Incorporate experience from both p81 and independent expert review panel projects
- Expert team provided information from grading and review projects

- August 2017 (1 planned)
- November 2017 (0 planned)
- February 2018 (2 planned)
- May 2018 (3 planned)

- Reliability Standards Development Plan
 - Anticipated endorsement by Standards Committee: September 2017
 - Presented to Board of Trustees: November 2017
- Supply Chain Reliability Standard success
- Endorsed Standard technical rationale and guidance process
- Initiated three periodic reviews, informed by 2017 grading

Trend for Number of Requirements





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Questions and Answers