

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
November 8, 2017

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- Compliance Monitoring and Enforcement Program (CMEP) Technology Project
- Entity Registration – Coordinated Functional Registrations (CFRs)
- ERO Portal – Misoperations Data Management
- Public Facing Website
- Electricity Information Sharing and Analysis Center (E-ISAC) Portal 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

- Single, common portal for registered entities
- Real-time access to information
- Improved analytics; visibility into compliance and reliability risks
- Increased productivity (estimated 15% gain for ERO Enterprise CMEP staff)
- Reduced application costs across the ERO Enterprise (\$420k annual savings)
- Investment break-even within five years

- Financial Constraint – Flat, inflationary budgets in the future
- Tactical Constraint – Workload becoming more complex

- 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
- Regions deferred investments
- Enterprise option meets strategic goals within constraints

- Groups include American Public Power Association and the Compliance and Certification Committee (CCC) Program Alignment Working Group
- Registered entities include:

▪ Kansas City Power and Light	▪ Midcontinent ISO
▪ Northern California Power Agency	▪ New York ISO
▪ Independent Electricity System Operator	▪ Southern Company
▪ ISO-New England	▪ California ISO
▪ NextEra Energy	▪ Sacramento Municipal Utility District
▪ New York Power Authority	▪ Duke Energy

- Estimated Capital Investment: \$5.0 to \$5.5M
- Estimated Annual Operating Costs: \$800k per year
- Includes license fees for system use by registered entities, NERC and Regional Entities
- Estimated average productivity gains for approximately 200 ERO Enterprise staff: ~15 percent in 2022 and beyond

- Requirements gathering completed
- Request for Proposal issued and returned
- Business case completed
- Technology Leadership Team and ERO EMG briefings completed
- Software selection - February 2018

- Selected consultant experienced with the ERO Enterprise and CMEP-type software solutions
- Will negotiate fixed-cost contracts
- Monthly project financial reviews
- Tollgates at each phase to review status and issues
- Periodic updates to other NERC Board of Trustees Committees

- Overview
 - System to create, review, and store information related to CFRs
- Benefits
 - Workflow automation for common CFR tasks (creation, approval, etc.)
 - Provides common source of record for CFR information to Regions, registered entities, and NERC
 - Enhance Region and NERC CFR oversight through new reporting and analysis functions
- Status
 - Production Date: November 13, 2017

- Overview
 - Provides registered entities the ability to submit, view, and manage misoperations and protection system data directly
- Benefits
 - Increase efficiency and improve data quality
 - Reduce corporate risk
 - Increase data visibility and security
- Status
 - Production Date: October 18, 2017

- Overview
 - First phase of on-going effort to enhance NERC.com (focused on Search)
- Benefits
 - Search optimization - More relevant results
 - Platform upgrade for stability, redundancy, and support from Microsoft
 - More efficient and reliable content publishing capability
- Status
 - Production Date: December 4, 2017

- Overview
 - Replacement of existing portal with enhanced capabilities for collaboration and threat data exchange
- Benefits
 - Commercial off-the-shelf content management system
 - Significantly improved user interface and experience
 - Future support for STIX/TAXII data and third party application integrations
- Status
 - Production Date: November 30, 2017

- CMEP Technology Project
- Entity Registration – Joint Registration Organizations and Multi-Region Registered Entity Coordinated Oversight participation
- Additional improvements to public facing website
- E-ISAC Portal Enhancements



Questions and Answers

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ERO Enterprise IT Investment Review Policy

Stan Hoptroff, Vice President, Chief Technology Officer, and Director of
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- Purpose and intent
- Threshold and relationship to IT project business cases
- Value areas and numerical scores
- Next steps

- Ensure accountability for investment decisions
- Provide transparency
- Ensure alignment of IT investments and the core mission
- Provide for quantitative and qualitative analysis
- Determine if expected benefits were realized

- Break ties when resources are constrained
- Integrate with other business process
 - Business planning and budgeting
 - Technology Leadership Team
 - Vendor selection and contract authorization
 - Internal auditing

- \$100K IT Projects
- Benefits and measurements included in the business case (e.g., Compliance Monitoring and Enforcement Program Technology Project, pages 7-9)
- Application of the methodology will result in a numerical score (1-5) for each project

- Reduce reliability risk
- Reduce costs to the ERO Enterprise
- Reduce risks to the corporation
- Provide new capabilities to the registered entities and the ERO Enterprise
- Increase the productivity of the registered entities and the ERO Enterprise
- Increase the quality of our work products (e.g., data, conclusions, reports, etc.)

- December 2017 stakeholder webinar
- Implement in 2018 in support of ERO Enterprise Metric 7.b.1
- Monitor and improve over time



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Reliability Standards Development Plan

Howard Gugel, Senior Director of Standards and Education
Standards Oversight and Technology Committee Meeting
November 8, 2017

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- Continuing Efforts from 2017:
 - Enhanced cost effectiveness considerations
 - Standards grading and Periodic Reviews (PRs)
 - Federal Energy Regulatory Commission (FERC) directives
 - Reliability Issues Steering Committee (RISC) rankings
- Additional elements for prioritization in 2018:
 - Standards Efficiency Review
 - Continuation of grading and PRs
 - FERC directives

- 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 PRs and attached to RSDP

Standards graded from the 2017-2019 RSDP

- BAL-003
- COM-001
- COM-002
- FAC-001
- FAC-002
- IRO-009
- MOD-032
- TPL-001

- BAL-005
- BAL-006
- CIP-014
- FAC-003
- FAC-010
- IRO-001
- IRO-006
- IRO-008
- IRO-010
- IRO-014
- IRO-017
- MOD-020
- MOD-025
- MOD-026
- MOD-027
- MOD-031
- PER-001
- PRC-002
- PRC-015
- PRC-016
- TOP-002
- TOP-003



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Standards Efficiency Review

Howard Gugel, Senior Director of Standards and Education
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November 8, 2017

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- Gordon van Welie – ISO-NE
- Greg Ford – Georgia Systems Operations Corporation
- Carol Chinn – Florida Municipal Power Agency
- John Pespisa – Southern California Edison Company
- Amy Casuscelli - Xcel Energy, Inc.
- Randy Crissman – New York Power Authority
- Ken McIntyre – NERC Executive Sponsor

- Define project scope and develop review criteria
- Solicit input for requirement candidate list
- Solicit candidates for review teams
- Evaluate review team product to ensure scope conformation
- Consider modifications to scope based on feedback
- Control parking lot list of items out of scope for this project

- 2016 and 2017 Standards Grading
- Incorporate experience from “Paragraph 81” effort and Independent Expert Review Panel
- Evaluate compliance history
- Formulate and vet candidate list

	Current Status	P81 and IERP Recommendations for Retirement
Total		281
Addressed	274	
In current projects	5	
Not assigned	2	

Resolution	Number	Percent of P81 and IERP Recommendations for Retirement	Percent of Enforceable Requirements as of 1/1/2013
Enforceable Requirements as of 1/1/2013	515		
Retired	130	48%	25%
Modified	113	41%	25%
Retained	31	11%	6%
	274		

- Create project page on NERC website
- Advisory Team finalize scope, criteria, and approach (November)
- Solicit industry experts for review teams (November)
- Present scope and approach to Standards Committee (December)
- Assemble review teams (2017 Q4 – 2018 Q1)
- Review teams submit draft SARs to industry for comment (2018 Q1)

- Industry ballots on proposed retirements/modifications to standards (2018 Q2 – 2018 Q3)
- Propose balloted standards to NERC Board of Trustees – 2018 Q3 – Q4 (changes to standards to include consolidation, modification, and retirement)



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Reliability Standards Quarterly Status Report

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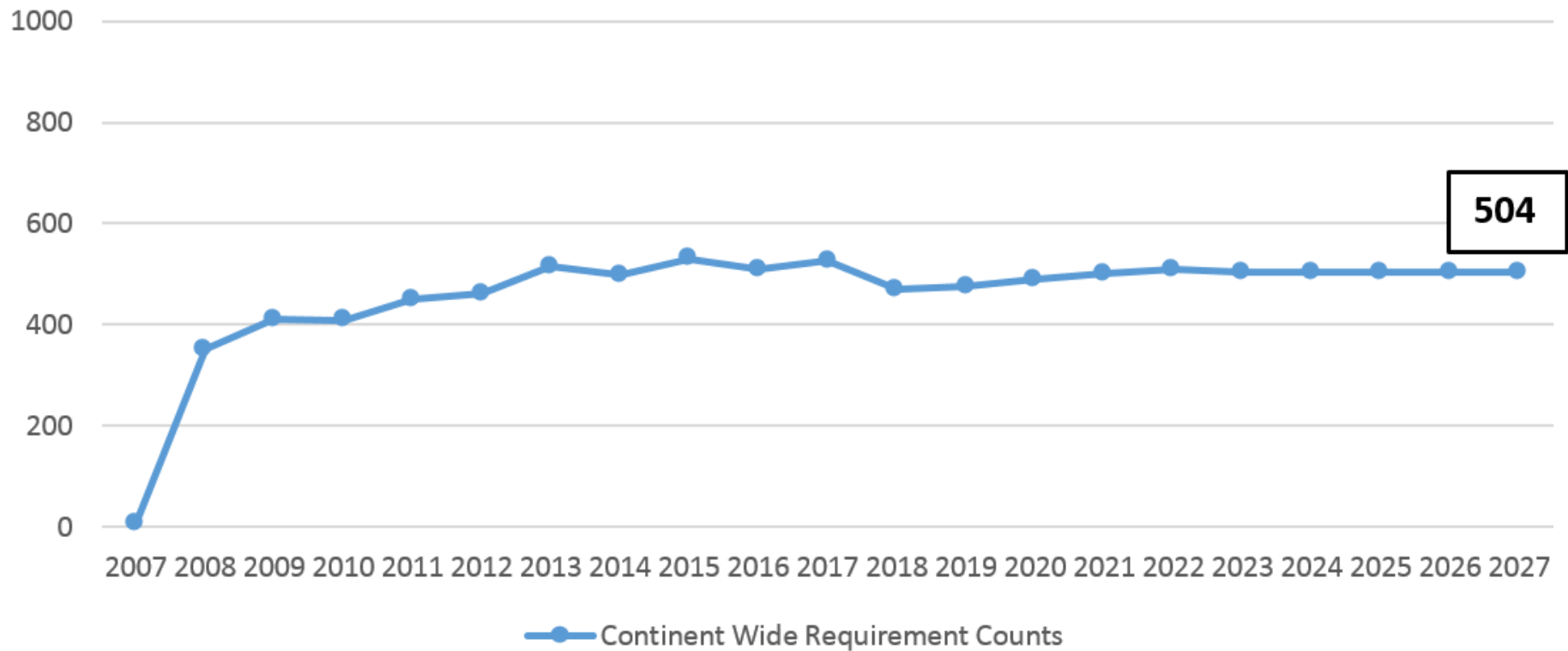
- 12 standards-related directives in progress

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 2017-06 Modifications to BAL-002	2	N/A

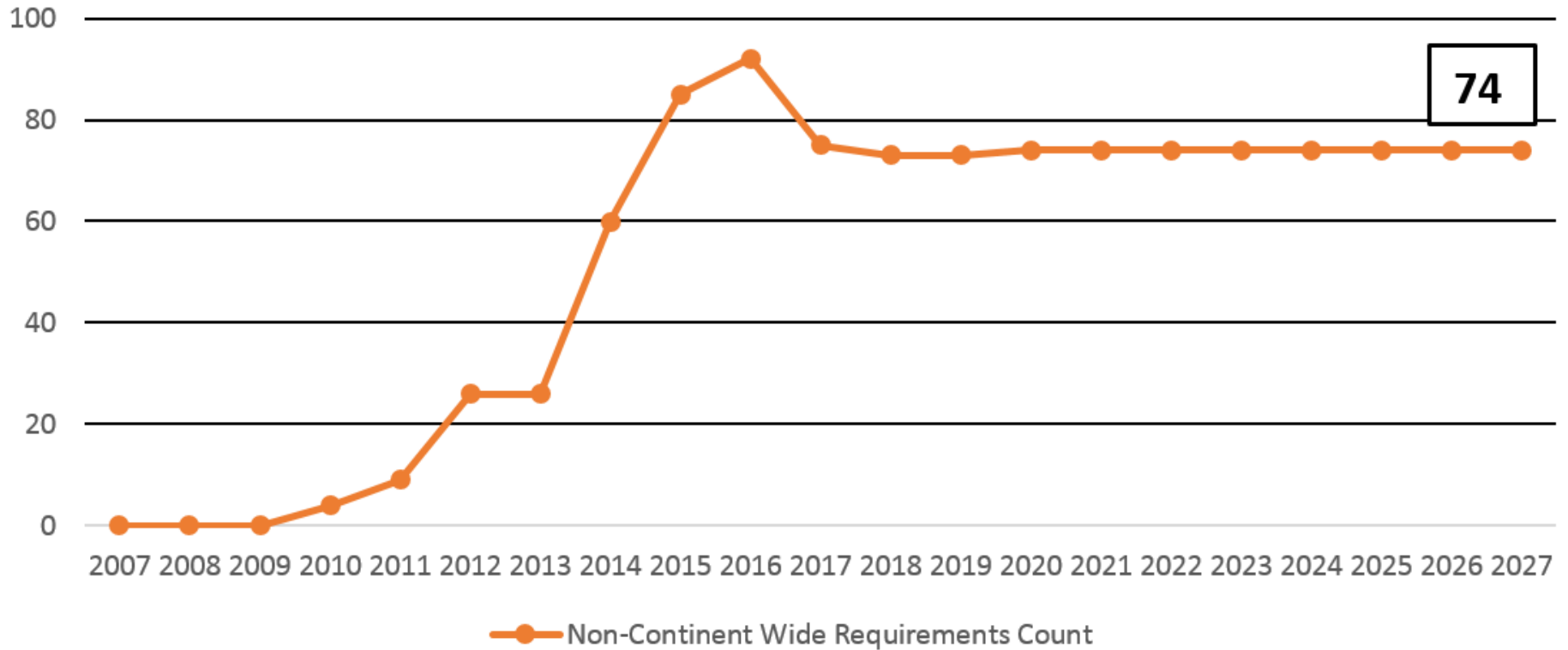
- November 2017 (1 planned)
- February 2018 (2 planned)
- May 2018 (3 planned)
- August 2018 (2 planned)

- Standards Committee (SC) Chair and Vice Chair election results for 2018-2019 term
 - Chair: Andrew Gallo, City of Austin dba Austin Energy
 - Vice Chair: Amy Casuscelli, Xcel Energy
- Reliability Standards Development Plan
 - Endorsement by SC: October 2017
 - Presented to Board of Trustees: November 2017
- Notification of SC Special Election Results
 - As a result of an SC special election ending October 16, 2017 to fill a vacancy in Segment 3 and Segment 5 for the 2018 one-year terms, the following new representatives have been elected. The terms expire on December 31, 2018.
 - Linn Oelker, LG&E and KU Services Company, Segment 3
 - William Winters, Con Edison Company of New York, Inc., Segment 5

Trend for Number of Requirements



Trend for Number of Requirements





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