

Registered Entities and ERO Enterprise IT Applications Update

Stan Hoptroff, Vice President and Chief Technology Officer Standards Oversight and Technology Committee Meeting May 10, 2017









- Registered Entities IT Projects Update
- ERO Enterprise IT Projects Update
- Compliance Monitoring and Enforcement Program (CMEP) Technology Program – Program objectives and current activities
- Electricity Information Sharing and Analysis Center (E-ISAC) IT Projects Update



Today's Topics

- IT Projects Cost Benefits Initiative Categories
- IT Projects Cost Benefits Initiative Scorecard
- 2017-2020 Technology Spend Plans
- 2017 Budget and 2018 Forecast
- Priorities Looking Ahead



- User Management and Records (NERC applications) Complete
 - Improved user experience, reduce complexity, and reduce support risk
 - Self service for users to manage profile, request access to lists, and resources
- Misoperations Data Portal Underway
 - New capability, increase quality and efficiency, mitigate reliability risk
 - Registered entities will submit, review, retrieve, and update misoperations data for reliability studies



- NERC Public Website Enhancements Underway
 - Improve user experience and reduce support challenges
- Entity Registration Application Underway
 - Mitigate reliability risk, improve client experience, and reduce costs
 - Phase 1 Coordinated Functional Registration
 - Integration with CMEP program



- Generating Availability Data System (GADS) Wind Turbine Generation (FERC 1600 Data Request)
 - Mitigate reliability risk and provide new capability
- CMEP Program
 - Mitigate reliability risk, improve user experience, reduce costs, and provide new capability



- Ensure consistency in practices and data gathering by aligning common CMEP business processes across the ERO Enterprise
- Improve the effectiveness of the ERO Enterprise by improving the ability to share and analyze reliability risk and compliance information
- Increase efficiency of compliance work activities across the ERO Enterprise through the use of workflows and collaboration tools



- Assist the ERO Enterprise in meeting applicable requirements of generally accepted professional standards, as well as requirements established through the Rules of Procedure
- Reduce total combined NERC and Regional Entity IT capital investments and maintenance cost for CMEP-related applications; current annual licensing and maintenance fees ERO Enterprise-wide spend of \$1.1M
- Enable easier data entry and access to information for registered entities



- ERO project team and experienced consultant currently focused on the following activities:
 - Project communications and change management plan
 - Requirements gathering
 - Process and tools inventory
 - Conceptual model for key data structures and relationships
 - RFP and selection criteria for a new CMEP solution



- E-ISAC Portal Platform Project underway
 - Targeted deployment September 2017
- Cybersecurity Risk Information Sharing Program (CRISP) Data Management Tools Evaluation and Support
 - Data Repository In production



IT Projects Cost Benefit Initiative -Categories

- Mitigate reliability risk to the Bulk Power System
- Reduce or avoid costs
- Increase capability
- Mitigate corporate risk
- Increase work quality
- Increase efficiency



Solution	Status	Primary Benefits
MIDAS Misoperations Information Data Analysis System	In Production	Reduce reliability risk TBD Increase capability & Increase work quality & Increase efficiency &
UMR User Management and Records	In Production	Mitigate corporate risk Increase efficiency TBD Reduce cost



Solution	Status	Primary Benefits
ERO Portal MIDAS	Project In Flight	Mitigate corporate risk Increase efficiency
Entity Registration	Project In Flight	Mitigate reliability risk Increase capability Mitigate corporate risk Increase work quality Increase efficiency



	<u>2017</u>	<u>2018</u>
ERO Enterprise		
New Functionality	\$1.5M	\$2.6M
Applications and Infrastructure Support	\$3.2M	\$3.2M
• NERC		
New Functionality (Document Management)	\$335k	\$0
Applications and Infrastructure Support	\$2.4M	\$2.3M
• E-ISAC*		
 Portal 	\$1M	\$350k
 Other 	\$402k	\$576k

* Does not include potential additional resources related to strategic initiatives being considered by the NERC Board of Trustees (Board) and Members Executive Committee (MEC)



2019 - 2020 Technology Spend Preliminary Projections

	<u>2019</u>	<u>2020</u>
 ERO Enterprise 		
New Functionality	\$3.0M	\$3.0M
Applications and Infrastructure Support	\$3.4M	\$3.7M
• NERC		
Applications and Infrastructure Support	\$2.7M	\$2.6M
 E-ISAC* 		
 Portal 	\$350k	\$350k
 Other 	\$576k	\$576k

* Does not include potential additional resources related to strategic initiatives being considered by the Board and MEC



Information Technology 2017 Budget – 2018 Forecast



(\$000's)

Information Technology Budget	2017	2018*
Personnel	\$ 4,227	\$ 4,238
Capital Expenditures	3,272	3,576
Contractors and Consultants	2,313	2,124
Meetings, Travel, and Conferencing	162	219
Office Costs	2,595	3,288
Total	\$ 12,569	\$ 13,445

*NOTE: The 2018 Budget is not final and is subject to change until approved by the Board on August 10, 2017.

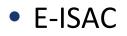


Priorities Looking Ahead

- Registered Entities
 - NERC Public Website Enhancements
 - Registration Application
 - GADS-Wind Data Portal
- ERO Enterprise
 - CMEP Technology Program
 - Enterprise Reporting Transmission Availability Data System and events data to be extracted and loaded
 - FERC order 830 Geo-Magnetic Disturbance Data collection solution



Priorities Looking Ahead



- E-ISAC Portal Platform
- E-ISAC Cyber Security Automation
- CRISP Analytical Capabilities









Additional Information



IT Projects Cost/Benefits

	Potential Beneficiaries			
Benefit Area	REGISTERED ENTITIES	REGIONS	NERC	Measurement Options
				Deliverable Confirmation
Mitigate Reliability Risk	x	x	x	Metric Based
				Surveys
Incroses Canability		v	×	Deliverable Confirmation
Increase Capability		X	X	Surveys
				Deliverable Confirmation
Mitigate Corporate Risk	Corporate Risk x x	Metric Based		
				Auditable Records
				Time/Labor Comparisons
Increase Work Oucling	×	v		Delivery Confirmation
Increase Work Quality	X	X	X	Metric Based
				Surveys
			x	Time/Labor Comparisons
Increase Efficiency	х	x		Surveys
				Anecdotal Evidence
Reduce Cost	x	x	x	Financial Reporting



Guidelines and Technical Basis Update

Howard Gugel, Senior Director of Standards and Education Standards Oversight and Technology Committee Meeting May 10, 2017







- Initially designed to support results based standards
- First used in FAC-003-2
- Contained an "information only" disclaimer
- Incorporated into standard development template
- Disclaimer paragraph was omitted





- Provides drafting teams a mechanism to
 - Explain the technical basis for Reliability Standard
 - Provide technical guidance to help support effective application
- To further clarify Guidance and Technical Basis (GTB)
 - NERC staff and Standards Committee (SC) leadership to coordinate
 - Captured in Task 3 in SC Strategic Plan



- NERC staff and SC leadership collaboration
- A separate document to explain technical basis
- Focus on understanding technology and the technical requirements
- No compliance approaches or compliance guidance
- Encourage use of NERC Compliance Guidance Policy





- Present to SC for endorsement
- Report results at August Standards Oversight and Technology Committee meeting
- Begin implementing for all projects going forward
- Consider in periodic reviews whether to remove GTB from existing standards









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

Howard Gugel, Senior Director of Standards and Education Standards Oversight and Technology Committee Meeting May 10, 2017





- Background
 - FERC issued Order No. 829 on July 21, 2016
 - Standard must be filed by September 2017
- Status
 - Initial ballot ended March 3, 2017: 10.36%
 - Additional comment period and ballot underway
 - Represents industry-responsive changes
 - Standards Committee coordination for subsequent ballots, if necessary
 - FERC filing deadline of September 27, 2017



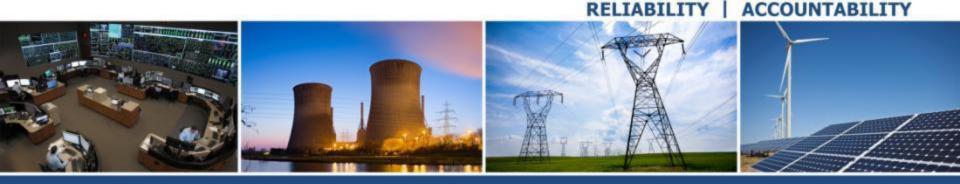






Reliability Standards Quarterly Status Report

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• 11 standards related directives in progress

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	2	N/A
Definition of "Low Impact External Routable Connectivity")		
Project 2016-03 Cyber Security Supply Chain Management	1	9/27/2017



Standard Projections

- May 2017 (0 planned)
- August 2017 (1 planned)
- November 2017 (1 planned)
- February 2018 (4 planned)



- Revisions to NERC Standard Processes Manual
 - Sections 6, 7, and 11
 - Posted for industry comment through May 3, 2017
- Notification of Standards Committee Special Election Results



Cost Effectiveness



- Current activities
- Future activities
- Policy input





