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NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Project 2009-02

Real-time Reliability Monitoring and Analysis Capabilities

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RELIABILITY | ACCOUNTABILITY



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- Project background
- Overview of changes in the current posting
- Next steps
- Discussion

- Real-time Tools Best Practices Task Force (RTBPTF) Report Published in 2008
- Major blackout reports
- FERC directives
- Revised TOP and IRO standards (now approved)
- Independent Experts Review Project Recommendations

- Situational awareness involves:
 - Monitoring
 - Alarming
 - Visualization
 - Analysis
 - State estimation (SE)
 - Contingency analysis
 - Etc.
- **Effective** Situational Awareness
 - Monitoring & Analysis is done with:
 - Sufficient **frequency**
 - Adequate **quality**
 - Awareness of **availability** of capabilities and tools

- Most situational awareness issues from the RTBPTF [Report](#) have been addressed
 - Requirements to perform monitoring and Real-time Assessments
 - IRO-008
 - TOP-001-3
 - Real-time Assessment definition
 - New definition (approved)
 - Data specification requirements (including data frequency)
 - IRO-010
 - TOP-003

- Project 2009-02 scope is focused on remaining objectives

Project 2009-02 Reliability Objectives		
	Monitoring Capabilities	Analysis Capabilities
Quality	Provide operator with indication of Real-time data quality and procedures to address issues affecting Real-time Assessments	Provide operator with indication of analysis quality used in Real-time Assessments and procedures to address issues
Availability	Provide operator with notification when alarming system is not operating	N/A (Addressed in IRO-008 and TOP-001-3)

- The proposed requirements also address FERC Order No. 693 directives

- Two proposed Reliability Standards have been drafted to meet the SAR objectives
 - IRO-018-1 applicable to Reliability Coordinators (RCs)
 - TOP-010-1 applicable to Transmission Operators (TOPs) and Balancing Authorities (BAs)
- Proposed requirements address:
 - Quality of Real-time data for Real-time monitoring and Real-time Assessments
 - Quality of analysis used in Real-time Assessments
 - System Operator notification of alarm processor failure

- Standards posted for comment and initial ballots September 24 – November 9, 2015

Standard	Approval
IRO-018-1	47.38%
TOP-010-1	48.00%

- SDT met November 12-13 to review comments and revise the proposed standards to address stakeholder concerns

- Considered stakeholder comments and modified requirements
- Added clarifications to Rationale boxes and Guidelines section
- Violation Severity Levels were added where appropriate
- Simplified the Implementation Plan
 - All requirements proposed to become effective after 18 months

Proposed requirements for RCs:

- R1: Implement an Operating Process or Operating Procedure to address the quality of Real-time data necessary to perform Real-time monitoring and Real-time Assessments. Include:
 - Criteria for evaluating Real-time data quality
 - Provisions to display Real-time data quality to the System Operator
 - Actions to resolve Real-time data quality issues affecting Real-time Assessments

Changes to R1 in the current draft

- Removed prescriptive elements from the initial draft requirement
- Combined requirement to display quality with the requirement to have Operation Process or Operating Procedure
- Clarified scope of actions to resolve data quality issues – impacting Real-time Assessments

- Example criteria for Real-time data quality
 - Manually replaced
 - Out of range
 - Etc.
- Example provisions to display data quality
 - Display color codes or quality flags
 - This does not mean alarming

Proposed requirements for RCs (cont'd):

- R2: Implement an Operating Process or Operating Procedure to **address** the quality of analysis used in Real-time Assessments.

Include:

- Criteria for evaluating the quality of analysis used in Real-time Assessments
- **Provisions to indicate quality of analysis**
- Actions to resolve analysis quality issues affecting Real-time Assessments

Changes to R2 in the current draft

- Combined requirement to display quality with the requirement to have Operation Process or Operating Procedure
- Clarified scope of actions to resolve analysis quality issues – impacting Real-time Assessments

Proposed requirements for RCs (cont'd):

- Example Criteria for Quality of Analysis
 - SE Mismatches
 - Solution tolerances
 - Real-time Contingency analysis (RTCA): Number of contingencies analyzed (solved, unsolved)
 - Etc.
- Examples of Analysis:
 - State estimation
 - Real-time Contingency analysis (RTCA)
 - Stability analysis or
 - Other studies performed for Real-time Assessments

Proposed requirements for RCs (cont'd):

- R3: Have an alarm process monitor that provides notification(s) to System Operators when a failure of its Real-time monitoring alarm processor has occurred
- This capability could be provided by an application within a Real-time monitoring system or by a separate component used by the System Operator
- Changes to R3 in the current draft
 - Removed the term *independent*

- TOP-010-1 is applicable to TOPs and BAs
- Applies to Real-time data specified in TOP-003-3 – Operational Reliability Data

Requirements for TOPs

- Operating Procedure or process for Real-time data quality (R1)
- Operating Procedure or process for analysis quality (R3)
- Alarm process monitor (R4)

Requirements for BAs

- Operating Procedure or process for Real-time data quality (R2)
- Alarm process monitor (R4)

- Draft 2 posted for comment and additional ballots December 10, 2015 – January 25, 2016
 - RSAWs posted for comment through January 25, 2016
- Details on [project status](#) can be found on the NERC website



Questions and Answers