Standard Authorization Request Form

Title of Proposed Standard: Project 2009-02: Real-time Reliability Monitoring and Analysis Capabilities	
Original Request Date: June 4, 2009	
Revised Date: January 15, 2010	
Revised Date: March 31, 2010	

SAR Requester Information		SAR Type (*Check a box for each one that applies.*)	
Name: Jack Kerr		X	New Standard(s)
Primary Contact: Dominion Virginia Power		X	Revision to existing Standard
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Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

The new or revised standard(s) will establish requirements for the functionality, performance, and maintenance of Real-time Monitoring and Analysis capabilities for Reliability Coordinators, Transmission Operators, Generator Operators, and Balancing Authorities for use by their System Operators in support of reliable System operations.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

According to the *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations,* dated April 2004, a principal cause of the August 14 blackout was a lack of situational awareness, which was in turn the result of inadequate reliability tools. In addition, the failure of control computers and alarm systems, incomplete tool sets, and the failure to supply network analysis tools with correct System data on August 14 contributed directly to this lack of situational awareness. Also, the need for improved visualization capabilities over a wide geographic area has been a recurrent theme in blackout investigations.

Recommendation 22 of the Blackout Report states "Evaluate and adopt better real-time tools for operators and reliability coordinators." NERC's Operating Committee formed the Real-time Tools Best Practices Task Force (RTBPTF) to evaluate real-time tools and their usage within the industry. The Task Force produced a report "*Real-Time Tools Survey*

Analysis and Recommendations", dated March 13, 2008 that included recommendations for the functionality, performance, and management of Real-time tools.

There are 2 directives in FERC Order 693 relating to minimum tool capabilities that need to be addressed. One directive pertains to IRO-002 and is described in paragraphs 905 & 906 of Order 693. The second directive pertains to TOP-006 and is described in paragraph 1660. These directives clearly indicate the desire for a minimum set of capabilities as opposed to specific tools. The existing projects that would have handled these issues (Project 2006-02 for IRO-002 and Project 2007-03 for TOP-006) have clearly indicated that they expect this SAR (Project 2009-02) to address the issues raised by FERC.

This SAR addresses selected recommendations in the RTBPTF Report as determined by the Real-time Best Practices Standards Study Group: Project 2009-02 and addresses the directives in Order 693 referenced above.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

The scope of the SAR is to establish requirements for the monitoring and analysis capabilities provided to System Operators and used to support Real-time System Operations. The SAR addresses availability parameters, performance metrics, and procedures for failure notification, maintenance coordination, and change management. The intent is to describe 'what' needs to be done but not 'how' to do it.

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)

Develop or revise standard(s) to describe the capability characteristics, such as availability parameters, performance metrics, failure notification, and maintenance (vetted by the industry through the Reliability Standards comment process)of functionality for:

- Monitoring power System data in Real-time.
- Exchanging power System data in Real-time.
- Alerting System Operators in Real-time to events and conditions affecting the state of the Bulk Electric System (BES). This functionality shall include an independent process monitor.
- Determining the current state of the BES.
- Evaluating the impact of 'what if' events on the current state of the BES.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
X	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
X	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
☐	Transmission Owner	Owns and maintains transmission facilities.
X	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
☐	Distribution Provider	Delivers electrical energy to the End-use customer.
☐	Generator Owner	Owns and maintains generation facilities.
X	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*		
X	1.	Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
X	2.	The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
X	3.	Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4.	Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
X	5.	Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6.	Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7.	The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8.	Bulk power systems shall be protected from malicious physical or cyber attacks.

Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes

Related Standards

Standard No.	Explanation
TOP-xxx	The TOP family of standards is undergoing revision. The eventual SDT should have the flexibility to revise these standards or write new standards as best fits the task.
IRO-xxx	The IRO family of standards is undergoing revision. The eventual SDT should have the flexibility to revise these standards or write new standards as best fits the task.
COM-001-1.1	The eventual SDT should have the flexibility to revise this standard or write new standards as best fits the task.
BAL-xxx	The BAL family of standards should be included in the scope of this SAR because they do address reliability-based data. Therefore, the eventual SDT should have the flexibility to revise these standards or write new standards as best fits the task.

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	