

## Standard Development Roadmap

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

### Development Steps Completed:

1. Standard drafting team appointed by the Standards Authorization Committee on June 21, 2006.

### Proposed Action Plan and Description of Current Draft:

This is the first posting of the proposed standard and its associated implementation plan for a 30-day comment period, from September 27–October 26, 2006.

### Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments and post a revised standard and implementation plan for a second comment period for 45-days.	November 15–December 29, 2006
2. Respond to comments on the second draft of the proposed standard.	January 15, 2007
3. Obtain the Standards Committee’s approval to move the standard forward to balloting.	January 15, 2007
4. Post the standard and implementation plan for a 30-day pre-ballot review.	February 1–March 2, 2007
5. Conduct an initial ballot for ten days.	March 5–16, 2007
6. Respond to comments submitted with the initial ballot.	March 23, 2007
7. Conduct a recirculation ballot for ten days.	March –April 4, 2007
8. Post for a 30-day preview for board.	April 1–30, 2007
9. BOT adoption.	May 2, 2007

## **A. Introduction**

1. **Title:**        **System Operator Training**
2. **Number:**    PER-005-1
3. **Purpose:**    To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System are competent to perform those tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.
4. **Applicability:**
  - 4.1. **Functional Entities:**
    - 4.1.1 Reliability Coordinator.
    - 4.1.2 Balancing Authority.
    - 4.1.3 Transmission Operator.
5. **Proposed Effective Date for Regulatory Approvals:** July 1, 2007

## **B. Requirements**

- R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct a System Operator job task analysis (JTA). The analysis must be updated when there is a new or revised task or tool. The JTA results shall include a list of company-specific reliability-related tasks assigned to each System Operator position and the following information for each of those tasks: [Risk Factor: High ]
  - R1.1. The conditions under which the task is performed.
  - R1.2. The actions to be taken in performing the task, including identification of references and tools used in performing the task.
  - R1.3. Identification of whether the task is performed alone or as part of a team.
  - R1.4. The criticality of the task with respect to reliability.
  - R1.5. The frequency of performing the task.
  - R1.6. The knowledge, skill, and experience needed to perform the task.
  - R1.7. The criteria for successful performance of the task.
- R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall assess the training needs (for the tasks identified in Requirement 1 and the criteria for successful performance of the task identified in Requirement 1.7.) of entry-level or newly hired experienced System Operators.[Risk Factor: Medium]
- R3. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct a training needs assessment of incumbent System Operator to identify mismatches (for the tasks identified in Requirement 1 and the criteria for successful performance of the task identified in Requirement 1.7.) between actual performance and the criteria for successful performance for each position performing reliability-related tasks identified in R1. (including any contract System Operator or System

Operator performing tasks identified in R1. under delegation agreements) at least once every year. [Risk Factor: High]

- R4.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have an annual training plan developed from the training needs assessments in R2. and R3. that identifies the topics, anticipated duration of the topic, and target schedule for the following types of training: [Risk Factor: Medium]

**R4.1.** Entry-level System Operator training to bring entry-level System Operator performance to a minimum acceptable level of competency on all assigned reliability-related tasks.

**R4.2.** Refresher training to reduce performance gaps of incumbent System Operator.

**R4.3.** Refresher training to provide incumbent System Operator with practice in performing tasks with high criticality and low frequency of occurrence.

**R4.4.** Continuing training to provide incumbent System Operator with new knowledge and skill to perform new or revised tasks or to use new tools.

- R5.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify that persons developing or delivering training have the following qualifications: [Risk Factor: High]

**R5.1.** Training development:

**R5.1.1.** Operating knowledge in the subject matter covered by the training activity.

**R5.1.2.** Competency in developing training using a systematic approach.

**R5.2.** Training delivery:

**R5.2.1.** Competency in training delivery.

- R6.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall implement its System Operator training program by providing training to all of its System Operator (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements) as follows: [Risk Factor: High]

**R6.1.** Entry-level training to provide System Operator with the knowledge and skill identified in R2. to meet the associated criteria for successful performance identified in R1.7.

**R6.2.** Continuing training to reinforce knowledge and skills of incumbent System Operators as identified in the JTA (Requirement 1) that were not covered in Requirement 4.2.

**R6.3.** Refresher training to eliminate performance gaps identified by the training needs assessments in Requirement 2, and Requirement 3.

**R6.4.** Continuing training to acquire the knowledge and skills necessary for new or modified tasks and tools identified in R2. and R3.

- R6.5.** Annual refresher training for incumbent System Operator that includes the use of drills and simulations on tasks that have high reliability-related criticality (as identified in R1.4.) and low frequency of occurrence (as identified in R1.5.) to meet the associated criteria for successful performance identified in R1.7. This refresher training shall include:

  - R6.5.1.** At least 32 hours of emergency operations or system restoration training, simulating the system conditions, operating procedures and communication processes.
  - R6.5.2.** At least one exercise each year shall involve other entities on a sub-regional, regional or interconnection-wide basis, involving all real-time operating positions likely to be involved in the actual event, with each person performing their assigned duties. [Risk Factor: Medium]
- R7.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall document the following for each training activity used to support its reliability-related System Operator training: [Risk Factor: Lower]

  - R7.1.** Title of the activity.
  - R7.2.** Training provider.
  - R7.3.** Description of the content covered by the activity.
  - R7.4.** Training method or methods.
  - R7.5.** Tools or reference documents needed for the training.
  - R7.6.** Identification of the task or tasks (identified in R1.), or supporting knowledge or skill (identified in R1.6.) covered by the training.
  - R7.7.** Identification of the conditions under which the associated task is performed (as identified in R1.1.).
  - R7.8.** Identification of any prerequisite training.
  - R7.9.** Objectives and assessments that duplicate the criteria for successful performance identified in R1.7. and mastery of the knowledge and skills in R1.6.
  - R7.10.** Practice in following the steps and using the tools and references identified in R1.2., including practice with others if the task is normally performed as part of a team (as identified in R1.3.)
- R8.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall track the progress of each of its System Operator (including any contract System Operator or System Operator performing tasks identified in R1. under delegation agreements) in using training to obtain the knowledge, skill and experience needed to meet the performance criteria specified in R1.7. for the tasks identified in R1. by maintaining the following records: [Risk Factor: Medium]

  - R8.1.** For each reliability-related task identified in R1., the date and method used to assess whether the System Operator's performance meets the criteria specified in R1.7.

- R8.2.** For participation in each training activity identified under R7., the date and duration of participation in training activities designed to develop their ability to meet the performance criteria in R1.7.
- R9.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of its System Operator training program to determine if the training does prepare System Operator to meet the criteria for successful performance as identified in R1.7. and use the results to update the program to meet identified deficiencies, giving consideration to the following information sources:  
[Risk Factor: Medium]
  - R9.1.** Feedback from trainees to identify areas where the training should be clarified or modified.
  - R9.2.** Results of learning assessments.
  - R9.3.** Post-training workplace performance feedback.
  - R9.4.** Audit results.
- R10.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain its System Operator training program so that the information provided to trainees accurately reflects the current operating environment. [Risk Factor: Medium]

### **C. Measures**

- M1.** Each Reliability Authority, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest JTA with the details specified in R 1.1. through R1.7.
- M2.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest training needs analysis that identifies each entry-level or newly hired experienced System Operator's training needs as specified in R2.
- M3.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest training needs analysis that identifies each incumbent System Operator's mismatches between actual performance and the criteria for successful performance as specified in R3.
- M4.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, its latest annual training plan as specified in R4.
- M5.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection documentation of the qualifications of personnel who developed or delivered System Operator training to show compliance with R5.
- M6.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, its training activities for its entry-level System Operator as specified in R6.1.
- M7.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, its training records to show that it provided each of its

incumbent System Operators with annual refresher training and continuing training in accordance with R6.2. and 6.4.

- M8.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection its training records to show that it provided its incumbent System Operator with training to eliminate performance gaps in accordance with R6.3.
- M9.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, training materials used for entry-level training, refresher training, and continuing training that meet the criteria identified in R7.
- M10.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, a training record showing the current status of each of its System Operators in meeting the performance identified in R1.7. as specified in R8.
- M11.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the results of its latest annual evaluation of its System Operator training program. (R9.)
- M12.** Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection, the latest versions of its System Operator training program to demonstrate that the information in the training materials was updated in accordance with R10.

## **D. Compliance**

### **1. Compliance Monitoring Process**

#### **1.1. Compliance Monitoring Responsibility**

Regional Reliability Organization

#### **1.2. Compliance Monitoring Period and Reset**

One or more of the following methods shall be used to verify compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The performance monitoring period for all requirements is one calendar year.  
The performance reset period for all requirements is one calendar year.

### 1.3. Data Retention

The Reliability Coordinator, Balancing Authority and Transmission Operator shall each have its current, in-force documents available as evidence of compliance as specified in each of the Measures.

If an entity is found non-compliant the entity shall keep information related to the non-compliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

### 1.4. Additional Compliance Information

None.

## 2. Violation Severity Levels (To be added with the next draft of the standard)

### 2.1. Level 1:

### 2.2. Level 2:

### 2.3. Level 3:

### 2.4. Level 4:

## E. Regional Differences

None.

### Version History

Version	Date	Action	Change Tracking