When completed, email to: gerry.cauley@nerc.net

Standard Authorization Request Form

Title of Proposed Standard	System Personnel Training
Request Date	07/01/2004 Revised 12/01/04

SAR Requestor Information		SAR Type (Put an 'x' in front of one of these selections)	
Name	NERC Personnel Subcommittee	☒	New Standard
Primary Contact	Earl Cass, Chair NERC PS	☐	Revision to existing Standard
Telephone Fax	605-882-7550 605-882-7453	☐	Withdrawal of existing Standard
E-mail	cass@wapa.gov	☐	Urgent Action

Purpose/Industry Need (Provide one or two sentences)

A training standard is required to set the minimum acceptable requirements for the development, implementation and maintenance of initial and continuing System Personnel Training programs.

This standard is needed to help insure that system personnel throughout the industry are provided with an adequate amount of training in order to promote the reliability and adequacy of the North American Interconnections and their bulk electrical systems.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies by double clicking the grey boxes.)*		
☒	Reliability Authority	Ensures the reliability of the bulk transmission system within its Reliability Authority area. This is the highest reliability authority.
☒	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within its metered boundary and supports system frequency in real time
☒	Interchange Authority	Authorizes valid and balanced Interchange Schedules
☒	Planning Authority	Plans the bulk electric system
☐	Resource Planner	Develops a long-term (>1year) plan for the resource adequacy of specific loads within a Planning Authority area.
☐	Transmission Planner	Develops a long-term (>1 year) plan for the reliability of transmission systems within its portion of the Planning Authority area.
☒	Transmission Service Provider	Provides transmission services to qualified market participants under applicable transmission service agreements
☐	Transmission Owner	Owns transmission facilities
☒	Transmission Operator	Operates and maintains the transmission facilities, and executes switching orders
☐	Distribution Provider	Provides and operates the "wires" between the transmission system and the customer
☐	Generator Owner	Owns and maintains generation unit(s)
☒	Generator Operator	Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services
☒	Purchasing-Selling Entity	The function of purchasing or selling energy, capacity and all necessary Interconnected Operations Services as required
☒	Market Operator	Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch.
☒	Load-Serving Entity	Secures energy and transmission (and related generation services) to serve the end user

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check boxes for all that apply by double clicking the grey boxes.)*	
☒	1. Interconnected bulk electric systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☒	2. The frequency and voltage of interconnected bulk electric systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☒	3. Information necessary for the planning and operation of interconnected bulk electric 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 electric systems shall be developed, coordinated, maintained and implemented.
☒	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems.
☒	6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified and have the responsibility and authority to implement actions.
☒	7. The security of the interconnected bulk electric systems shall be assessed, monitored and maintained on a wide area basis.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box by double clicking the grey area.)*	
1.	The planning and operation of bulk electric systems shall recognize that reliability is an essential requirement of a robust North American economy. Yes
2.	An Organization Standard shall not give any market participant an unfair competitive advantage.Yes
3.	An Organization Standard shall neither mandate nor prohibit any specific market structure. Yes
4.	An Organization Standard shall not preclude market solutions to achieving compliance with that Standard. Yes
5.	An Organization 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

Detailed Description (Provide enough detail so that an independent entity familiar with the industry could draft, modify, or withdraw a Standard based on this description.)

Requirements shall be established for the development, implementation, and maintenance of system personnel training programs. The goal would be to promote the reliability of the Interconnections through the setting of appropriate minimum training requirements for system personnel. The standard would be designed to promote quality-training programs for the initial and continuing education of system personnel. The Standard shall include essential elements of a training program, required minimum number of hours, topics of study, and training program requirements. This standard should, as a minimum, include the following:

1. Elements of a training program
    a. Objectives
        i. Competency-based
    b. Needs assessments
        i. Job task analysis
    c. Training plan
    d. Schedule
    e. Delivery methods
    f. Program design
    g. Progress (learning) assessment
    h. Program evaluation
    i. Administration
        i. Learning management system
        ii. Documentation
        iii. Record retention
2. Initial training requirements (topics and hours)
    a. Entry level positions
    b. Assessment guides
    c. Certification preparation
    d. On-the-job training
3. Continuous training requirements (topics and hours)
    a. Annual training requirements
        i. Number of hours that system personnel must commit to annual training
        ii. Topics
        iii. Methods
    b. Progression training
    c. Cross training
    d. Job related (OJT)
    e. Refresher training
    f. Emergency training
    g. Advanced system operations training
    h. Situational awareness training
    i. Team training
    j. System awareness
        i. Local area
        ii. Adjacent system
        iii. Wide-area
4. Simulation training
    a. Initial and continuous requirements

b. Operator Training Simulators (DTS, OTS)
c. Drills and table top exercises

5. Identify target audiences
   a. System personnel that impact system reliability
      i. Includes all functional authorities identified in the NERC Functional Model, management and supervision and other support staff
6. Staffing level adequacy needed to improve the quality and quantity of training
   a. Operating personnel (System personnel that impact system reliability)
   b. Training personnel
7. Training resources and staff
   a. Facilities
   b. Tools
   c. Materials
   d. Instructor qualifications
      i. Instructors must be individuals competent in both knowledge of the subject and instructional capabilities
   e. Instructor training requirements
   f. Funding
8. Program accreditation standards (Initial and continuous)
   a. Adheres to the NERC Continuing Education program criteria
   b. Approval and revocation processes
9. Compliance to training standards
   a. Templates

Related Standards

Standard No.	Explanation
PER-002-0 (031)	If Version 0 standards are adopted, proposed standard PER-002-0 (031) on Operating Personnel Training would be entirely replaced.

Related SARs

SAR ID	Explanation
BA_CERTIFICATION_01_03	Certification of the Balancing Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
IA_CERTIFICATION_01_02	Certification of the Interchange Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
RA_CERTIFICATION_01_02	Certification of the Reliability Authority function includes requirements for staffing with NERC-certified system operators. The proposed standard should set a required minimum training program for these certified system operators.
TOP_CERTIFICATION_01_02	Certification of the transmission Operator Authority function includes requirements for staffing with NERC-certified system

	operators. The proposed standard should set a required minimum training program for these certified system operators.

Regional Differences

Region	Explanation
ECAR	
ERCOT	
FRCC	
MAAC	
MAIN	
MAPP	
NPCC	
SERC	
SPP	
WECC	

Related NERC Operating Policies or Planning Standards

ID	Explanation
Policy 8B - Training	Policy 8B - Training - requires that all operating authority shall provide its system operators with a coordinated training program that is designed to promote reliable operation. The purpose of the proposed standard is to define what would constitute a coordinated training program, and what types of training would be required. The proposed standards should include a requirement for the amount of training required on an annual basis, the core curriculum of the training that should be provided, and the standards for the design, development and delivery of the training (criteria from the NERC Continuing Education Program). System operators should include Reliability coordinators, control area operators and transmission operators. In addition, the proposed standard should include training for operator support staff, as outlined in Recommendation 19 of the Joint US-Canada Power System Outage Task Force report on the August 14, 2003 Blackout. Operating Policy 8B would be retired by the adoption of this proposed Standard on System Personnel Training, if it has not already been retired with the adoption of Version 0 standards.
Appendix 8B1	Appendix 8B1 - Suggested Items for System Operator Training Courses - is an outline of suggested items that should be included in a training program for system operators. While this listing is extensive, the proposed standard should address

	a core curriculum of training that would be required for 1) entry level system operators, 2) system operators who work under the authority of control area operators and reliability coordinators and 3) senior system operators. Appendix 8B1 would be retired by the adoption of this proposed Standard on System Personnel Training, if it has not already been retired with the adoption of Version 0 standards.
P8T3	Compliance template on Operating Personnel Training would be entirely replaced, unless it has already been retired by adoption of Version 0 standards.