

Brief Description (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.)

The PRC-005, 008, 011, and 017 reliability standards are intended to assure that Transmission & Generation Protection Systems are maintained and tested so as to provide reliable performance when responding to abnormal system conditions. It is the responsibility of the Transmission Owner, Generation Owner, and Distribution Provider to ensure the Transmission & Generation Protection Systems are maintained and tested in such a manner that the protective systems operate to fulfill their function.

Only PRC-005 will be commented on in detail although the other three standards have the same concerns.

SPCTF concluded that:

- Applicable to all four standards — The listed requirements do not provide clear and sufficient guidance concerning the maintenance and testing of the Protection Systems to achieve the commonly stated purpose which is “To ensure all transmission and generation Protection Systems affecting the reliability of the Bulk Electric System (BES) are maintained and tested.”
- Applicable to PRC-017 — Part of the stated purpose in PRC-017 is: “To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.” The phrase “and misoperations are analyzed and corrected” is not clearly appropriate in a maintenance and testing standard. That is the purpose is more appropriate in PRC-003 and PRC-004, which relate to the analysis and mitigation of protection system misoperations. Analysis of correct operations or misoperations may be an integral part of condition-based maintenance processes, but need not be mandated in a maintenance standard.
- Applicable to all four standards — The standards should clearly state which power system elements are being addressed.
- Applicable to all four standards — The requirements should reflect the inherent differences between various protection system technologies.
- Applicable to all four standards — The terms maintenance programs and testing programs should be clearly defined in the glossary. The terms “maintenance” and “testing” are not interchangeable, and the requirements must be clear in their application. Additional terms may also have to be added to the glossary for clarity.
- Applicable to all four standards — The requirements of the existing standards, as stated, support time-based maintenance and testing, and should be expanded to include condition-based and performance-based maintenance and testing. The R1.2 summary of maintenance and testing procedures needs to have some minimum defined sub-requirements to insure that the stated intent of the standards is met to support review by the compliance monitor.

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Reliability Functions

The Standard will Apply to the Following Functions <i>(Check box for each one that applies.)</i>		
<input type="checkbox"/>	Reliability Coordinator	Ensures the reliability of the bulk transmission system within its Reliability Coordinator area. This is the highest reliability authority.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Interchange Authority	Authorizes valid and balanced Interchange Schedules.
<input type="checkbox"/>	Planning Authority	Plans the Bulk Electric System.
<input type="checkbox"/>	Resource Planner	Develops a long-term (>one year) plan for the resource adequacy of specific loads within a Planning Authority area.
<input type="checkbox"/>	Transmission Planner	Develops a long-term (>one year) plan for the reliability of transmission systems within its portion of the Planning Authority area.
<input type="checkbox"/>	Transmission Service Provider	Provides transmission services to qualified market participants under applicable transmission service agreements
<input checked="" type="checkbox"/>	Transmission Owner	Owns transmission facilities.
<input type="checkbox"/>	Transmission Operator	Operates and maintains the transmission facilities, and executes switching orders.
<input checked="" type="checkbox"/>	Distribution Provider	Provides and operates the "wires" between the transmission system and the customer.
<input checked="" type="checkbox"/>	Generator Owner	Owns and maintains generation unit(s).
<input type="checkbox"/>	Generator Operator	Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services.
<input type="checkbox"/>	Purchasing-Selling Entity	The function of purchasing or selling energy, capacity, and all necessary Interconnected Operations Services as required.
<input type="checkbox"/>	Market Operator	Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch.

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<input type="checkbox"/>	Load-Serving Entity	Secures energy and transmission (and related generation services) to serve the end user.
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Reliability and Market Interface Principles

Applicable Reliability Principles <i>(Check box for all that apply.)</i>	
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented.
<input checked="" type="checkbox"/>	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems.
<input type="checkbox"/>	6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified, and have the responsibility and authority to implement actions.
<input checked="" type="checkbox"/>	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 the following Market Interface Principles? <i>(Select "yes" or "no" from the drop-down box.)</i>	
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	

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Related Standards

Standard No.	Explanation
PRC-005-1	Modify and create a general maintenance and testing standard.
PRC-008-0	Maintenance and testing of UFLS protection relays should be consolidated with a general maintenance and testing standard.
PRC-011-0	Maintenance and testing of UVLS protection relays should be consolidated with a general maintenance and testing standard.
PRC-017-0	Maintenance and testing of SPS protection relays should be consolidated with a general maintenance and testing standard.

Related SARs

SAR ID	Explanation
	Standards Development Work Plan Project 2007-1 includes PRC-008-0.
	Standards Development Work Plan Project 2008-2 includes PRC-011-0.
	Standards Development Work Plan Project 2008-4 includes PRC-005-1 and PRC-017-0.

Regional Differences

Region	Explanation
ERCOT	None
FRCC	None
MRO	None
NPCC	None
SERC	None
RFC	None
SPP	None
WECC	None

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