

## Standard Authorization Request Form

Title of Proposed Standard	Protection System Misoperation Identification and Correction
Request Date	June 9, 2011

<b>SAR Requester Information</b>	<b>SAR Type</b> <i>(Check a box for each one that applies.)</i>	
Name: NERC Pilot Rapid Development Team	<input type="checkbox"/>	New Standard
Primary Contact: Al McMeekin	<input checked="" type="checkbox"/>	Revision to existing Standard (revise Misoperation definition; combine PRC-003-1, PRC-004-1a, and PRC-004-2)
Telephone: (803) 530-1963 Fax	<input checked="" type="checkbox"/>	Withdrawal of existing Standard (PRC-003-1)
E-mail: al.mcmeekin@nerc.net	<input type="checkbox"/>	Urgent Action

<p><b>Purpose</b> (Describe what the standard action will achieve in support of bulk power system reliability.)</p> <p>A key element for Bulk Electric System (BES) reliability is the correct performance of Protection Systems. Monitoring BES Protection System events, as well as identifying and correcting the root causes of Misoperations will improve Protection System performance.</p>
<p><b>Industry Need</b> (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.)</p> <p>In FERC Order No. 693 (dated March 16, 2007), the Commission identified PRC-003-1 as a "fill-in-the-blank" standard and did not approve or remand the standard since the regional procedures had not been submitted.</p> <p>Since PRC-003-1 is not enforceable, there is not a mandatory requirement for Regional procedures to support the requirements of PRC-004-2. This could lead to a potential reliability gap.</p>
<p><b>Brief Description</b> (Provide a paragraph that describes the scope of this standard action.)</p> <ul style="list-style-type: none"> <li>▪ Revise the definition of Misoperation</li> <li>▪ Combine PRC-003 and PRC-004, and retire standard PRC-003.</li> </ul>
<p><b>Detailed Description</b> (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)</p>

This project will revise the existing definition of Misoperation, which reads:

**Misoperation (current definition)**

- Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
- Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
- Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

In general, this definition needs more specificity and clarity. The terms “specified time” and “abnormal condition” are ambiguous. In the third bullet, more clarification is needed as to whether an unintentional Protection System operation for an atypical yet explainable condition is a Misoperation.

Misoperation data, as currently collected and reported, is not usable to establish a consistent metric for measuring Protection System performance. The NERC Pilot Rapid Development Team recommends establishing a standard with uniform applicability, revising the definition of Misoperation and clarifying reporting requirements.

Furthermore, the proposed requirements of the revised Reliability Standard PRC-004-3 should meet the following objectives:

- Review all Faults or Protection System operations on the BES to identify those that are BES Protection System Misoperations
- Analyze BES Protection System Misoperations to determine the cause(s)
- Develop and implement Corrective Action Plans to address the causes of BES Protection System Misoperations

**Reliability Functions**

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

**Reliability and Market Interface Principles**

<b>Applicable Reliability Principles</b> <i>(Check box for all that apply.)</i>	
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input type="checkbox"/>	4. Plans for emergency operation and system restoration of interconnected bulk power 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 power systems.
<input type="checkbox"/>	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
<input type="checkbox"/>	7. The reliability of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
<input type="checkbox"/>	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
<b>Does the proposed Standard comply with all of the following Market Interface Principles?</b> <i>(Select 'yes' or 'no' from the drop-down box.)</i>	
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**

<b>Standard No.</b>	<b>Explanation</b>
PRC-003-0	Retire
PRC-004-1a	Retire
PRC-004-2	Retire
PRC-003-STD-1	Overlaps, but no conflict (compliance is not mutually exclusive, and

	complying with the more stringent standard will ensure the less stringent standard is met)
PRC-004-WECC-1	Overlaps, but no conflict (compliance is not mutually exclusive, and complying with the more stringent standard will ensure the less stringent standard is met)

***Related SARs***

SAR ID	Explanation

***Regional Variances***

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	Check