

### 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. Draft 1 of SAR posted for comment June 11, 2007 – July 10, 2007.
2. SAR approved on August 13, 2007.
3. First posting of revised standard PRC-001-2 on September 11, 2009
4. PRC-001-2 was approved by the NERC Board of Trustees on May 9, 2012, retiring legacy Requirements R2, R5, and R6 of PRC-001-1. Transitioned from a to-development of PRC-027-1 based on independent comments, quality review feedback, and consideration of FERC directives relative to existing requirements of PRC-001-1.

Note: The Project 2007-03 Real-time Operations SDT ~~recently proposed revisions to PRC-001-1 by retiring the three operating time frame. A redlined version of PRC-001-1 was posted with the three operating time frames (R Requirements R2, R5, and R6) deleted.~~ The resulting clean version of PRC-001-2, containing the remaining three legacy Requirements R1, R3, and R4 of PRC-001-1, was ~~also posted~~ adopted by the NERC Board of Trustees on May 9, 2012. The Project 2007-06 System Protection Coordination SDT is recommending retirement of the ~~two planning time frame legacy~~ Requirements, ~~R3-R2 and R4-R3~~ of PRC-001-2 (formerly Requirements R3 and R4 of PRC-001-1) of PRC-001-1 that remain in PRC-001-2 (now R2 and R3) because the reliability objectives of those requirements are addressed ~~Protection System coordination issues included in PRC-027-1.~~ This redlined version shows the changes proposed to PRC-001-2. A mapping document is also posted showing the disposition of those legacy

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

The Project 2007-06 System Protection Coordination SDT is recommending retirement of the legacy Requirements R2 and R3 of PRC-001-2 because the reliability objectives of those requirements are addressed in the new Reliability Standard PRC-027-1 — Protection System Coordination for Performance During Faults. This redlined version of PRC-001-2 shows the proposed changes. The SPC SDT is posting PRC-001-3 and PRC-027-1 for stakeholder comments under a 30-day formal comment period with a parallel successive ballot. The ballot of PRC-001-3 is associated with the approval of PRC-027-1 and the implementation plan for this project.

~~The SPC SDT created a new results-based standard PRC-027-1 to coordinate Protection Systems utilized to protect interconnected Facilities, such that those Protection Systems remove from service only those Elements required to isolate Faults, while meeting the system performance specified within requirements established in other approved NERC Reliability Standards. This standard incorporates and enhances the coordination aspects of Requirements R3 and R4 from PRC-001-1. The SPC SDT is requesting a posting for stakeholder comments under a 30-day formal comment period.~~

#### Future Development Plan:

<u>Anticipated Actions</u>	<u>Anticipated Date</u>
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<u>30-day Formal Comment Period with Parallel Successive Ballot</u>		<u>June 2013</u>
<u>Recirculation Ballot</u>		<u>August 2013</u>
<u>BOT Adoption</u>		<u>November 2013</u>
<b><u>Anticipated Actions</u></b>		<b><u>Anticipated Date</u></b>
<u>1. Post for successive ballot.</u>		<u>3Q12</u>
<u>2. Post for recirculation ballot.</u>		<u>1Q13</u>
<u>3. Submit to BOT.</u>		<u>1Q13</u>

### **Definitions of Terms Used in Standard**

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the glossary.*

**There are no new or revised definitions proposed in this standard revision.**

**A. Introduction**

1. **Title:** System Protection Coordination

2. **Number:** PRC-001-~~2~~3

3. **Purpose:**

To ensure system protection is coordinated among operating entities.

**4. Applicability:**

**4.1. Functional Entities:**

4.1.1 Transmission Operator

4.1.2 Generator Operator

4.1.3 Balancing Authority

**4.2. Facilities:**

4.2.1 Protection Systems that are installed for the purpose of detecting Faults on BES Elements (lines, buses, transformers, etc.)

4.2.2 Protection Systems used for underfrequency load-shedding systems installed per ERO underfrequency load-shedding requirements.

4.2.3 Protection Systems used for undervoltage load-shedding systems installed to prevent system voltage collapse or voltage instability for BES reliability.

4.2.4 Protection Systems installed as a Special Protection System (SPS) for BES reliability.

4.2.5 Protection Systems for generator Facilities that are part of the BES, including:

4.2.5.1 Protection Systems that act to trip the generator either directly or via lockout or auxiliary tripping relays.

4.2.5.2 Protection Systems for generator step-up transformers for generators that are part of the BES.

4.2.5.3 Protection Systems for transformers connecting aggregated generation, where the aggregated generation is part of the BES (e.g., transformers connecting facilities such as wind-farms to the BES).

~~4.~~ 4.2.5.4 Protection Systems for station service or excitation transformers connected to the generator bus of generators which are part of the BES, that act to trip the generator either directly or via lockout or tripping auxiliary relays. **Applicability**

~~4.1.~~ **Balancing Authorities**

~~4.2.~~ **Transmission Operators**

**Generator Operators**

- 5. Effective Date:** All requirements become effective the first day of the first calendar quarter twelve months following applicable regulatory approval. In those jurisdictions where ~~no~~ regulatory approval is not required, the ~~requirements standard shall~~ become effective on the first day of the first calendar ~~quarter-quarter that is~~ twelve months ~~following beyond the date this standard is approved by the NERC Board of Trustees, or as otherwise made effective pursuant to the laws applicable to such ERO governmental authorities.~~ adoption.

## B. Requirements

- R1.** Each Transmission Operator, Balancing Authority, and Generator Operator shall be familiar with the purpose and limitations of protection system schemes applied in its area. *[Violation Risk factor: High][Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]*
- ~~**R2.** A Generator Operator or Transmission Operator shall coordinate new protective systems and changes as follows:~~
- ~~**R2.1.** Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority. *[Violation Risk Factor: High][Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]*~~
- ~~**R2.2.** Each Transmission Operator shall coordinate all new protective systems and all protective system changes with neighboring Transmission Operators and Balancing Authorities. *[Violation Risk Factor: High][Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]*~~
- ~~**R3.** Each Transmission Operator shall coordinate protection systems on major transmission lines and interconnections with neighboring Generator Operators, Transmission Operators, and Balancing Authorities. *[Violation Risk Factor: High][Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]*~~

## C. Measures

- M1.** For Requirement 1, each Transmission Operator, Balancing Authority, and Generator Operator shall have evidence that may include, but is not limited to, documentation indicating that training in basic relaying and any Special Protection Systems within its area was provided to its applicable personnel.~~the Responsible Entity provided, to its applicable personnel, in basic relaying and any Special Protection Systems within its area. was provided the Responsible Entity's applicable personnel, in basic relaying and any Special Protection Systems within its area~~Each Generator Operator and Transmission Operator shall have and provide upon request evidence that could include ~~but is not limited to, revised fault analysis study, letters of agreement on settings, notifications of changes, or other equivalent evidence that will be used to confirm that there was coordination of new protective systems or changes as noted in Requirements 2, 2.1, and 2.2.~~

## D. Compliance

### 1. Compliance Monitoring Process

Updated to add latest default language.

#### 1.1. Compliance Enforcement Authority

As defined in the NERC Rules of Procedure, “Compliance Enforcement Authority” means NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards. The Regional Entity shall be responsible for compliance monitoring, serve as the Compliance enforcement authority unless the applicable entity is owned, operated, or controlled by the Regional Entity. In such cases the ERO or a Regional entity approved by FERC or other applicable governmental authority shall serve as the CEA.

#### ~~1.2. Compliance Monitoring and Reset Time Frame~~

~~One or more of the following methods will be used to assess 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 Reset Period shall be 12 months from the last finding of non-compliance.~~

#### 1.3.1.2. Data Retention

The following evidence retention periods identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full time period since the last audit.

~~Each Generator Operator and Transmission Operator shall have current, in-force documents available as evidence of compliance for Measure 1.~~

Updated to add a time retention period for the remaining requirement.

Each responsible entity shall keep evidence to demonstrate compliance with Requirement R1 for the previous three calendar years.

If an entity is found non-compliant, the entity shall keep information related to the noncompliance until mitigation is complete and approved~~until found compliant,~~ or

for ~~two years plus the current year~~ the time period specified above, 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~~ Enforcement Authority shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

**1.4.1.3. Compliance Monitoring and Assessment Processes**

One or more of the following methods will be used to assess compliance:

- Compliance Audit
- Self-certification
- ~~— (Conducted annually with submission according to schedule.)~~
- Spot Checking Audits ~~(Conducted anytime with up to 30 days notice given to prepare.)~~
- Compliance Investigation
- Self-Reporting
- Complaint
- ~~—~~
- ~~— 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.)~~

**1.5.1.4. Additional Compliance Information**

None.

2. Violation Severity Levels

Requirement #	VRF	Time Horizon	Lower	Moderate	High	Severe
R1	High	Operations Planning, Same-day Operations, Real-time Operations	N/A	N/A	The responsible entity failed to be familiar with the limitations of protection system schemes applied in its area.	The responsible entity failed to be familiar with the purpose of protection system schemes applied in its area.
<del>R2</del>	<del>N/A</del>	<del>N/A</del>	<del>N/A</del>	<del>N/A</del>	<del>N/A</del>	<del>N/A</del>
<del>R2.1</del>	<del>High</del>	<del>Operations Planning, Same-day Operations, Real-time Operations</del>	<del>The Generator Operator failed to coordinate one new protective system or protective system change with either its Transmission Operator or its Host Balancing Authority or both.</del>	<del>The Generator Operator failed to coordinate two new protective systems or protective system changes with either its Transmission Operator or its Host Balancing Authority, or both.</del>	<del>The Generator Operator failed to coordinate three new protective systems or protective system changes with either its Transmission Operator or its Host Balancing Authority, or both.</del>	<del>The Generator Operator failed to coordinate more than three new protective systems or protective system changes with its Transmission Operator or its Host Balancing Authority, or both.</del>
<del>R2.2</del>	<del>High</del>	<del>Operations Planning, Same-day Operations, Real-time Operations</del>	<del>The Transmission Operator failed to coordinate one new protective system or protective system change with neighboring</del>	<del>The Transmission Operator failed to coordinate two new protective systems or protective system changes with neighboring</del>	<del>The Transmission Operator failed to coordinate three new protective systems or protective system changes with</del>	<del>The Transmission Operator failed to coordinate more than three new protective systems or protective system changes</del>

**Standard PRC-001-2.3 — System Protection Coordination**

			Transmission Operators or Balancing Authorities or both.	Transmission Operators or Balancing Authorities or both.	neighboring Transmission Operators or Balancing Authorities or both.	with neighboring Transmission Operators or Balancing Authorities or both.
<b>R3</b>	<b>High</b>	Operations Planning, Same-day Operations, Real-time Operations	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with one of its neighboring Generator Operators, Transmission Operators, or Balancing Authorities.	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with two of its neighboring Generator Operators, Transmission Operators, or Balancing Authorities.	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with three of its neighboring Generator Operators, Transmission Operators, or Balancing Authorities.	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with three or more of its neighboring Generator Operators, Transmission Operators, and Balancing Authorities.

### E. Regional Differences

None identified.

### Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
0	August 25, 2005	Fixed Standard number in Introduction from PRC-001-1 to PRC-001-0	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2	May 9, 2012	Delete data Requirements R2, R5, and R6, as they are now addressed in TOP-003-2.	Revised
<u>3</u>	<u>May 9, 2012</u>	<u>Adopted by Board of Trustees</u>	<u>Revised</u>
<u>4</u>	<u>TBD</u>	<u>Delete Requirements R2 and R3, as they are now addressed in PRC-027-1.</u>	<u>Revised</u>