

# Unofficial Comment Form

## Project 2007-06 System Protection Coordination

### 3<sup>rd</sup> Draft of PRC-027-1

Please **DO NOT** use this form for commenting. Please use the [electronic comment form](#) to submit comments on the 3<sup>rd</sup> draft of the standard PRC-027-1: Protection System Coordination for Performance During Faults. Comments must be submitted by **8 p.m. Eastern July 3, 2013**. If you have questions please contact [Al McMeekin](#) or by telephone at 803-530-1963.

<http://www.nerc.com/pa/Stand/Pages/Project-2007-06-System-Protection-Coordination.aspx>

#### Background Information:

The Project 2007-06 System Protection Coordination Standard Drafting Team (SPCSDT) posted an initial draft of the Standard PRC-001-2 on September 11, 2009 for comments. In that draft, the SPCSDT attempted to address the planning and non-operational issues identified in the assessment of PRC-001-1 performed by the NERC System Protection and Control Task Force (SPCTF) as well as the operating time frame issues identified in FERC Order 693. These operating time frame requirements involved detecting Protection System failures, informing operators and taking quick corrective actions; consequently, the SPCSDT transferred the Order 693 directives associated with Requirements R2, R5 and R6 to Project 2007-03 Real-time Operations for inclusion in the revisions of the appropriate operating standards associated within that project. The Project 2007-03 drafting team retired Requirements R2, R5, and R6 of PRC-001-1 because they addressed data and data requirements that are now included in Reliability Standard TOP-003-2. The NERC Board of Trustees adopted Reliability Standards TOP-003-2 and PRC-001-2 on May 9, 2012.

The SPCSDT has also revised PRC-001-2. Revisions include the removal of Requirements R2 and R3 (formerly Requirements R3 and R4 of PRC-001-1). These two legacy requirements are being retired because the aspects of coordination they address are incorporated in the proposed Reliability Standard PRC-027-1, Protection System Coordination for Performance During Faults. The SPCSDT believes the training aspects of Requirement R1 would be more appropriately addressed by the PER group of Reliability Standards. Consequently, the drafting team has recommended via the NERC Issues Database that the future drafting team charged with revising PER-005-1 incorporate the reliability objective of Requirement R1 into the revised standard. Until that occurs, Requirement R1 of PRC-001-2 must remain in the standard. In an effort to improve PRC-001-2 until it can be fully retired, the drafting team has provided a measure to accompany Requirement R1. The Applicability section was also updated to clarify which Protection Systems are applicable to Requirement R1. (The 'Facilities' portion of the Applicability section is identical to the new stakeholder-approved and NERC Board of Trustees-adopted PRC-005-2.)

The SPCSDT has responded to stakeholder comments and incorporated pertinent suggestions into the third draft of PRC-027-1 for stakeholder review and comment. PRC-001-3 is also presented for your review.

### Questions

For questions 1 – 7, please provide specific comments related to the individual question. For question 8, please provide general comments not related to questions 1 – 7.

You do not have to answer all questions. Enter All Comments in Simple Text Format. *Insert a “check” mark in the appropriate boxes by double-clicking the gray areas.*

1. Based on stakeholder comments, the drafting team modified the Purpose of this standard to:

“To coordinate Protection Systems for Interconnected Elements, such that Protection System components operate in the desired sequence during Faults.”

Do you agree with this Purpose? If not, please provide specific suggestions for improvement in the comment area.

Yes

No

Comments: The wording is redundant. Coordinating Protection Systems mean operating in the desired sequence during faults. The Purpose should just read “To coordinate Protection Systems for Interconnected Elements”.

2. The drafting team modified the proposed definition of **Interconnected Element** to read as follows:

**Interconnected Element:** A BES Element that electrically joins facilities owned by:

a) separate Registered Entities, or

b) the same Registered Entity that represents multiple functional entity responsibilities (Distribution Provider, Generator Owner, or Transmission Owner).

Do you agree with the revised definition? If not please provide specific suggestions for improvement in the comment area.

Yes

No

Comments:

3. In Requirement R1, the drafting team modified the time frame to allow entities 60 months to have a documented Protection System Coordination Study (PSCS) completed for each Interconnected Element if no PSCS exists. Note, the drafting team has allowed inclusion of all previously performed

PSCS whose summary of results include, at a minimum, the Protection Systems reviewed, the associated Fault currents used, any issues identified, and any revisions or actions proposed.

Do you agree with this revised time frame? If not, please provide specific suggestions for change in the comment area.

Yes

No

Comments: 60 months is an adequate and appropriate period which balances the interest of reliability with the economics related to engineering costs.

4. In Requirement R2, the drafting team modified the time frame to 60 months for either conducting a Fault current review or provide a technical justification as to why a Fault current review is not necessary.

Do you agree with this revision to Requirement R2? If not, please provide specific suggestions for improvement in the comment area.

Yes

No

Comments: 60 months is an adequate and appropriate period which balances the interest of reliability with the economics related to engineering costs.

5. In Requirement R4, the drafting team has clarified the expectation of what a response to a review of the summary results of a Protection System Coordination Study should include. The options are as follows:

- Accepting the results, or
- Rejecting the results and suggesting modifications to resolve any identified coordination issues.

Do you agree with this revision to Requirement R4? If not, please provide specific suggestions for improvement in the comment area.

Yes

No

Comments: R4 requires all affected parties agree to a solution. However, the applicable Functional Entities that PRC-027 impacts are limited only to the TO, GO and DP. When designing a protection system scheme to clear faults, a satisfactory solution in the perspective of a TO, GO and DP may have unintended consequences for the Transmission Operator. For example, what if the solution is to leave what in normal operation is a significantly loaded transmission line in a potentially open terminal configuration by leaving a ring bus configuration open after clearing a fault? How can the TO, GO and

DP ensure their agreed upon solution is manageable for the Transmission Operator? There should be a notification requirement to the TOP.

6. The drafting team revised the Applicability section of PRC-001-2 to clarify which Protection Systems are applicable to Requirement R1. (The 'Facilities' portion of the Applicability section is identical to the new stakeholder-approved and NERC Board of Trustees-adopted PRC-005-2.) Do you agree with this revision to the Applicability? If not, please provide specific suggestions for improvement in the comment area.

Yes

No

Comments: There should be consistency between standards on this point.

7. The drafting team provided a measure to accompany Requirement R1 of PRC-001-2. (The language in the measure was modeled after the existing language in the RSAW for PRC-001-2.) Do you agree with this measure? If not, please provide specific suggestions for improvement in the comment area.

Yes

No

Comments: To specifically address Requirement R1, the Measure should be rewritten to stress that there be familiarity with the protection system schemes applied in its area. Suggest revising the Measure for Requirement R1 to read:

Each Transmission Operator, Balancing Authority, and generator Operator shall have evidence that its appropriate personnel were made familiar with protection systems in its area.

That can be made easily auditable by having written summaries of the schemes, and have personnel sign offs after reading.

8. If you have any other comments that you haven't already provided in response to the above questions, please provide them here.

Comments: PRC-027-1 in its entirety needs a quality review. Requirement R2 is not written correctly--it does not refer to the entities first. Also, each Requirement has multiple numbered Measures.

The Requirement also states that the functional registration (e.g. GOP) has to demonstrate compliance, not the individual operators. If it is the intent of the Standard that each individual operator of an entity be familiar this should be added. By stating the functional registration as opposed to the individuals, it could be interpreted that as long as any Registered Entity SME is

familiar with the purpose and limitations of the protection systems that the entity will be able to demonstrate compliance.

Suggested rewording of the Requirement:

Each Transmission Operator, Balancing Authority, and Generator Operator responsible for the operation of BES elements shall have its operators be familiar with the purpose and limitations of protection system schemes, either through training or operational experience, applied in its area.

There has been a broad variation in how the language of this requirement is applied during audits.