Unofficial Comment Form
1st Draft of PRC-005-3: Protection System and Automatic Reclosing Maintenance (Project 2007-17.2)

Please **DO NOT** use this form for submitting comments. Please use the [electronic form](#) to submit comments on the 1st draft of the standard PRC-005-3 for Protection System and Automatic Reclosing Maintenance. The electronic comment form must be completed by 8 p.m. ET May 6, 2013.

If you have questions please contact Al McMeekin at al.mcmeekin@nerc.net or by telephone at 803-530-1963.

2007-17.2 Project Page

**Background Information**
On February 3, 2012, the Federal Energy Regulatory Commission (FERC or Commission) issued Order No. 758 approving an interpretation of NERC Reliability Standard PRC-005-1, Transmission and Generation Protection System Maintenance and Testing. In addition to approving the interpretation, the Commission directed that concerns identified in the preceding Notice of Proposed Rulemaking (NOPR) be addressed within the reinitiated PRC-005 revisions. The concerns raised in the NOPR pertain to automatic reclosing (autoreclosing) relays that are either “used in coordination with a Protection System to achieve or meet system performance requirements established in other Commission-approved Reliability Standards, or can exacerbate fault conditions when not properly maintained and coordinated,” in which case “excluding the maintenance and testing of these reclosing relays will result in a gap in the maintenance and testing of relays affecting the reliability of the Bulk-Power System.” To address these concerns, the Commission concludes that “specific requirements or selection criteria should be used to identify reclosing relays that affect the reliability of the Bulk-Power System.”

In response to Order No. 758, the Protection System Maintenance and Testing Standard Drafting Team (SDT) drafted a Standard Authorization Request (SAR) to modify PRC-005 to include the maintenance and testing of reclosing relays that can affect the reliable operation of the Bulk-Power System. On May 10, 2012, the NERC Standards Committee (SC) accepted the SAR and authorized that it be posted for information only along with the 3rd draft of PRC-005-2. The NERC SC noted that PRC-005-2 was in the final stages of the development process, having passed a successive ballot with 79 percent approval on June 27, 2012 and was scheduled to be presented for approval at the November 2012 NERC Board of Trustees meeting. Consequently, in recognition of the consensus achieved, the NERC SC determined that the drafting team should complete the development of PRC-005-2 and immediately thereafter begin work on PRC-005-3 which would reflect the necessary revisions to address reclosing relays.
The SDT also requested the NERC Planning Committee (PC) provide the technical input necessary to develop the appropriate revisions to PRC-005. The NERC PC instructed the NERC System Analysis and Modeling Subcommittee (SAMS) and System Protection and Control Subcommittee (SPCS) to jointly perform a technical study to determine which reclosing relays should be addressed within PRC-005 and provide advice regarding the appropriate maintenance intervals and activities for those relays. The final report was approved by the NERC PC on November 14, 2012 and provided to the SDT for guidance in developing PRC-005-3.

In Order No. 758, the Commission also directed NERC to file, by July 30, 2012, either a completed project, or an informational filing providing “a schedule for how NERC will address such issues in the Project 2007-17 reinitiated efforts.” On July 30, 2012, NERC submitted an informational filing in compliance with Order No. 758 with a proposed schedule for addressing reclosing relays. The project number and name is as follows: Project 2007-17.2 Protection System Maintenance and Testing - Phase 2 (Reclosing Relays)

On January 17, 2013, the NERC SC authorized the draft SAR be posted for formal industry comment concurrent with project development.

The PSMTSDT is presenting Draft 1 of PRC-005-3 for a 30-day formal comment period beginning April 5, 2013 and ending May 6, 2013.
Questions
You do not have to answer any questions. Enter All Comments in Simple Text Format. Bullets, numbers, and special formatting will not be retained. Insert a “check” mark in the appropriate boxes by double-clicking the gray areas.

NOTE: The Standards Authorization Request specifically limits this project to modifying PRC-005-2 to address the addition of reclosing relays which can affect the reliability of the BES, and specifically precludes general improvements to PRC-005-2.

1. The drafting team modified PRC-005-2 and its associated Supplementary Reference and FAQ document to address Automatic Reclosing as directed in FERC Order No. 758. Do you agree with these changes? If not, please provide specific suggestions for improvement.
   - [ ] Yes
   - [x] No

Comments: The maintenance for Automatic Reclosing installed on the lines defined at Section 4.2.1 should be done at the same time with the maintenance of Protection Systems installed on those lines. Similarly, the maintenance for Automatic Reclosing used as an integral part of a SPS defined in Section 4.2.4 should be done at the same time as the maintenance for a SPS. This should be reflected in this revision of the Standard.

The Considerations for Maintenance and Testing of Autoreclosing Schemes report attached as a supporting document mentions as a credible failure “a close signal is issued with no delay or less delay than is intended”. This failure should be classified as either a normal contingency or an extreme contingency. The classification is important because the TPL standards define different study conditions based on contingency classifications.

How are interconnections to be considered in Applicability Section 4.2.6 Automatic Reclosing?

Section 4.2.6.1 states that Automatic Reclosing should be maintained “at generating plant substations where the total installed capacity is greater than the capacity of the largest generating unit within the Balancing Authority Area”. However, depending on the assumptions used for system configurations, there may be other locations where if the double three phase fault described in Footnote 1 is applied, the total generation loss could be greater than the largest unit within the Balancing Authority. Also, should the criteria be based on largest single source loss rather than largest generating unit? Otherwise, there is no mechanism that triggers review of applicability of this standard. For example, what if the largest generating unit within the BA Area is removed permanently from service? This is applicable in the Northeast, where TO and GO functions are performed by different entities/owners. The BA is the entity that determines the largest single source loss in its area; they would also be the proper functional entity to identify the generator locations in 4.2.6.1. The TPL or the BAL standards...
could then include a trigger mechanism to review applicability of 4.2.6 to GOs and TOs for a change in the largest single source loss criteria/limit.

From a Registration Criteria perspective, the terms “unit” and “plant” as employed in the Registration Criteria suggest a two-part Applicability test. The first part is a comparison between the single “largest generating unit” and a larger multi-unit generating plant located at a single site (i.e., the term a “plant” as used in NERC Rules of Procedure, Appendix 5B NERC Statement of Compliance Registry Criteria). In this first part of the test the sum of the capacity ratings of the smaller individual units exceeds the single “largest generating unit” within the Balancing Authority Area. This is compared with a single “largest generating unit.” The second part of the Applicability test relates to the “generating plant substations.” In this phrase the word “substations” is plural. This plural wording suggests that the multi-unit generating plant feeds more than one substation.

Suggest the following alternatives to the wording of Section 4.2.6.1:

“Where generating plant substations are interconnected locally at the generating plant site, or adjacent to the generating plant site, and applied on BES Elements at the generating plant substations.”

Or

“Automatic Reclosing is applicable where the total site installed generating plant capacity is greater than the capacity of the largest generating unit within the Balancing Authority Area or when 4.2.6.3 applies.”

Applicability Section 4.2.6.2 addresses the electrical and geographical proximity of the “generating plant substations” interconnections by stating “one bus away” and “less than 10 circuit-miles from the generating plant substation.” For clarification, suggest revising Section 4.2.6.2 to read “Where generating plant substations are interconnected at a distance from the generating plant site, applied on BES Elements at substations located one bus away from generating plant substations when the substation is less than 10 circuit-miles from the generating plant substation.” What is the technical justification for the 10 circuit-miles? It may be necessary to confirm the 10 circuit miles with the Planning Coordinator.

It is not clear if a substation “one bus away from generating plants” that meets the criteria in 4.2.6.2 and includes buses at two voltage levels, separated by a power transformer, is considered as one bus, or as two buses separated by a power transformer. If the former applies, reclosing relays on elements at only one of the substation buses would be included in this standard.
If a reclosing relay is found non-functional during maintenance activity and has to be removed from service for an extended period of time, which in turn fully removes automatic reclosing functionality, is it still identified as an Unresolved Maintenance Issue? The final SAMS-SPCS report states that if “No close signal is issued under conditions that meet the intended design conditions, (…) this failure mode does not create any additional considerations for inclusion of autoreclosing relays in PRC-005”, which implies that it would not be identified as an Unresolved Maintenance Issue.

Footnote 1 is not explicit as to the reclosing operation referred to. The Requirement appears to address only three pole, single shot reclosing. There is no reference to single pole reclosing or cases where multiple shot reclosing may be utilized. A more generalized statement should be considered:

Automatic Reclosing addressed in Section 4.2.6.1 and 4.2.6.2 may be excluded if the equipment owner can demonstrate that, in the event of a close-in permanent fault, the reclosing utilized does not result in a total loss of generation in the Interconnection exceeding the largest unit within the Balancing Authority Area where the Automatic Reclosing is applied.

Rationale should be provided to describe the system conditions to be considered for studying the three phase fault described in Footnote 1.

Footnote 1 places the burden on the owner of the reclosing relays to demonstrate which reclosing relays can be excluded by making the determinations outlined in the footnote. This should be the role of the Reliability Coordinator or Planning Coordinator and not the equipment owner. Consequently, we believe that the applicability of this standard should be expanded to RCs and/or PCs in order to properly conduct the sort of studies asked for in the standard.

Section 4.2.6.3 is not specific enough with regard to reclosing used in an SPS. The use of the word “integral part of an SPS” is subject to interpretation and may require details of the SPS that will not be readily available to the owner of the reclosing relays.

There should be a process in place to update the list of the Automatic Reclosing excluded from being maintained.

The standard must consider that neighboring entities may be involved in the lines being tested.

2. The drafting team developed an Implementation Plan for PRC-005-3 based on the Implementation Plan for PRC-005-2 to address the addition of Automatic Reclosing. Do you agree with the implementation plan regarding Automatic Reclosing? If not, please provide specific suggestions for improvement.

☐ Yes
☐ No