Unofficial Comment Form

Project 2010-05.3 Phase 3 of Protection Systems: Remedial Action Schemes (RAS)
PRC-012-2 and Proposed Definition of “Special Protection System”

Do not use this form for submitting comments. Use the electronic form to submit comments on draft 2 of PRC-012-2 – Remedial Action Schemes and the Proposed Definition of “Special Protection System”. The electronic comment form must be submitted by 8 p.m. Eastern, Friday, January 8, 2016.

Documents and information about this project are available on the project page. If you have questions, contact Standards Developer, Al McMeekin (via email), or at (404) 446-9675.

Background Information

This project is addressing all aspects of Remedial Action Schemes (RAS) and Special Protection Systems (SPS) contained in the RAS/SPS-related Reliability Standards: PRC-012-1, PRC-013-1, PRC-014-1, PRC-015-1, and PRC-016-1. The maintenance of the Protection System components associated with RAS (PRC-017-1 Remedial Action Scheme Maintenance and Testing) are already addressed in PRC-005. PRC-012-2 addresses the testing of the non-Protection System components associated with RAS/SPS and the overall performance of the RAS.

In FERC Order No. 693 (dated March 16, 2007), the Commission identified PRC-012-0, PRC-013-0, and PRC-014-0 as “fill-in-the-blank” standards and did not approve or remand them. These standards are applicable to the Regional Reliability Organizations (RROs), assigning the RROs the responsibility to establish regional procedures and databases, and to assess and document the operation, coordination, and compliance of RAS/SPS. The deference to regional practices precludes the consistent application of RAS/SPS-related Reliability Standard requirements.

The proposed draft of PRC-012-2 corrects the applicability of the fill-in-the-blank standards by assigning the requirement responsibilities to the specific users, owners, and operators of the Bulk-Power System; and incorporates the reliability objectives of all the RAS/SPS-related standards.

On February 3, 2015, NERC submitted a petition for approval of a revised definition of “Remedial Action Scheme” to add clarity and to ensure proper identification of Remedial Action Schemes and a more consistent application of related Reliability Standards. As explained in the petition, “[t]he defined terms ‘Special Protection System’ and ‘Remedial Action Scheme’ are currently used interchangeably throughout the NERC Regions and in various Reliability Standards, including prior versions of the Proposed Reliability Standards.” Along with this proposed revised definition, NERC submitted revisions to various Reliability Standards by replacing the term “Special Protection System” and replacing it with the newly revised “Remedial Action Scheme.” As NERC stated, “use of only one term in the NERC Reliability Standards will
ensure proper identification of these systems and application of related Reliability Standards.” The petition also anticipated future revision to the definition of “Special Protection System” to cross-reference the newly revised and proposed definition of “Remedial Action Scheme.” This coordination, which would be achieved by implementing the new definition of “Special Protection System” simultaneously with the Commission approval of the revised definition for “Remedial Action Scheme,” will ensure that all references to “Special Protection System” and “Remedial Action Scheme” refer to the same revised definition. On June 18, 2015, the Commission issued a Notice of Proposed Rulemaking (“NOPR”) proposing to accept the revisions to the RAS definition and associated standards, and on November 19, 2015, the Commission issued a Final Order approving the RAS definition and associated standards.

45-day Formal Comment Period

The drafting team made numerous changes to Reliability Standard PRC-012-2 and its implementation plan based on stakeholder comments from the previous posting. The team appreciates the feedback you provided and considered all of your suggestions. The responses to your comments and a summary of the changes are located in the Consideration of Comments document posted on the project page. The drafting team is soliciting stakeholder comments and feedback on the second draft of PRC-012-2 and its implementation plan.

Additionally, the drafting team is soliciting comments and feedback on the revised definition of “Special Protection System” and its implementation plan which are posted for an initial ballot.
Questions

1. **Limited impact designation:** Within the RAS review process of PRC-012-2, the drafting team included a provision that RAS can be designated as “limited impact” if the RAS cannot, by inadvertent operation or failure to operate, cause or contribute to BES Cascading, uncontrolled separation, angular instability, voltage instability, voltage collapse, or unacceptably damped oscillations. A RAS implemented prior to the effective date of this standard that has been through the regional review process and designated as Type 3 in NPCC, Type 2 in ERCOT, or LAPS in WECC will be recognized as limited impact. When appropriate, new or functionally modified RAS implemented after the effective date of this standard will be designated as limited impact by the Reliability Coordinator during the RAS review process. Do you agree with the provision that RAS can be designated as “limited impact”? If no, please provide the basis for your disagreement and an alternate proposal.

   □ Yes  □ No
   Comments:

2. **Implementation Plan for PRC-012-2:** The drafting team revised the Implementation Plan to provide clarity and to lengthen the implementation period to thirty-six months to provide the responsible entities adequate time to establish the new working frameworks among functional entities. Do you agree with the revised Implementation Plan? If no, please provide the basis for your disagreement and an alternate proposal.

   □ Yes  □ No
   Comments:

Revise in R8 “Requirement R8 must be completed at least once within six (6) full calendar years of the effective date for PRC-012-2,” to “Requirement R8 must be completed at least once within six (6) full calendar years AFTER the effective date for PRC-012-2”. The reason for this is that the word “of” can imply “prior to the effective date” whereas “after” is clearly stating there is no requirement to present evidence prior to the effective date. If the SDT agrees then R4 should be modified as well.

Revise R9 to:
For each Reliability Coordinator that does not have a RAS database upon the effective date of PRC-012-2, as described above, the initial obligation under Requirement R9 is to establish a database on the effective date of PRC-012-2 as describe above. Each RC will perform the obligation of R9 within twelve full calendar months after the effective date of PRC-012-2 as describe above.

3. **Revised Definition of “Special Protection System” and its Implementation Plan:** The drafting team revised the definition of “Special Protection System” to cross-reference the revised definition of “Remedial Action Scheme”. The Implementation Plan for the revised definition of “Special Protection
System” aligns with the effective date of the revised definition of “Remedial Action Scheme”. Do you agree with the proposed definition and its implementation plan? If no, please provide the basis for your disagreement and an alternate proposal.

☐ Yes
☐ No
Comments:

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

Comments:

R9 as written requires an update to the database to be made every 12 months. The Measure requires evidence that the database was updated. This would not address the situation where no update to the database was required because information did not change. Reliability Standards usually use the phrase “review the information in the database and update as necessary”. Then the Measure becomes to present evidence that the review occurred and if a change occurred then the database was updated.

Section 4.1.3 reads “Except for “limited impact”1 RAS, the possible inadvertent operation of the RAS, resulting from any single RAS component malfunction satisfies all of the following:” Criteria 4.1.3.1 – 4.1.3.5 follow. Should this requirement also pertain to a failure to operate, which is the more severe consequence of have a single RAS component malfunction? Suggest the following wording change: “Except for “limited impact”1 RAS, the possible inadvertent operation or failure to operate of the RAS, resulting from any single RAS component malfunction satisfies all of the following:”

R6, second bullet item presently reads “Notifying the Reliability Coordinator pursuant to Requirements R5, or”. To be clear a CAP is only needed if the RAS fails to operate or if during the evaluation of an operation, a deficiency is confirmed. Suggest changing the language of this bullet to “Notifying the Reliability Coordinator of a deficiency or failure to operate pursuant to Requirements R5.2, or”

Use of the word “cannot” in footnote 1 is too restrictive and onerous for excluding a RAS from having to comply with the single component failure requirements in PRC-012-2. We suggest the Footnote 1 be revised to say:

“A RAS designated as “limited impact” has been demonstrated by studies to not cause or contribute to BES Cascading, uncontrolled separation, angular instability, voltage instability, voltage collapse, or unacceptably damped oscillations as a result of inadvertent operation or failure to operate. See Attachment 2 for a description of the limited impact determination by the Reliability Coordinator. A RAS implemented prior to the effective date of this standard that has been through the regional review process and designated as Type 3 in NPCC, Type 2 in ERCOT, or LAPS in WECC will be recognized as limited impact for the purposes of Requirement 4, Parts 4.1.3 and 4.1.4.”
R8 is vague and subject to interpretation. There are references in the supplemental material that suggest maintenance checking all of the logic in a PLC on a periodic basis is required and yet in PRC-005, it’s clear that there is no need to perform periodic maintenance on relay logic. R8 also does not consider fully monitored components of the RAS such as in PRC-005.

Attachment 1, II.6 language should be modified similar to comment above to capture the possible RAS failure to operate due to a single RAS component malfunction. Suggest new wording: “Documentation describing the System performance resulting from the possible inadvertent operation or failure to operate of the RAS, except for limited impact RAS, caused by any single RAS component malfunction. Single component malfunctions in a RAS not determined to be limited impact must satisfy all of the following:”

Attachment 1, III.3 statement appears to be only applicable to “limited impact” RAS. Wording of this item should be modified to reflect this. A limited impact RAS will still function correctly when a single component failure occurs or when a single component is taken out for maintenance. In all cases, reliability of a RAS scheme is impacted. It is not realistic to expect that reliability will not be compromised. It is unclear what the intent of this statement is.

While we support the proposed standard as presented, the word “participate” in Requirements R5, R6 and R8 can lead to confusion and may result in no entities being held responsible for initiating or leading the required tasks. As written, the RAS Entity needs only to participate in such tasks, but it is unclear on whose tasks are they or who leads these tasks.

We suggest remove the word “participate” from R5, R6 and R8 so that the RAS Entity is held responsible for analyzing the RAS operational performance in R5, developing a CAP in R6, and conducting functional test in R8. Note that the wording in the VSLs for R5, R6 and R8 clearly indicates that the RAS Entity is responsible for these tasks. Hence, the word “participate” in the above-mentioned three requirements is unnecessary and confusing.

We respectfully requests the STD to consider its previous comment; we believe that RAS should be reviewed and approved in both the planning and operating horizons by the designated entities within whose area(s) the Facility (ies) the RAS is designed to protect reside.

We believes that the term “in-kind” included in Footnote 4, “Changes to RAS hardware beyond in-kind replacement of existing components” is vague and suggests that the term be clarified such that the reader knows that the replacement of an electromechanical relay with a microprocessor relay is construed as an “in kind” replacement, as the drafting team noted in their December 15th presentation. The concept of “In-kind” replacement could be taken a step further. For example, a discrete ladder logic circuit that includes contacts, overcurrent and voltage relays could be replaced entirely inside the software logic of a multifunction device. From a black-box viewpoint, the old and new RAS would be identical in function. We also suggests for additional consideration that the replacement of many discrete components with a single multifunction component also be considered an “in kind” replacement so long as for a given set of inputs the “black box” produces the same outputs as the previous RAS would. In the case of a breaker...
failure event, the Standards Drafting Team “SDT” indicates the need for RAS redundancy even though that would be a double failure event (failure of the RAS and failure of the breaker). We suggest that it is sufficiently redundant to use the existing breaker failure relay (non-redundant) to initiate both RAS schemes. This can be accomplished by each RAS using a different contact off the breaker failure relay that was separately fused.

We suggest the SDT consider using a consistent measure of time, either calendar months or full calendar days, for responding and reporting. For example, Requirement 2 states: Each Reliability Coordinator that receives Attachment 1 information pursuant to Requirement R1, shall, within four-full-calendar months of receipt, or on a mutually agreed upon schedule, perform a review of the RAS in accordance with Attachment 2, and provide written feedback to each RAS-entity.” Whereas Requirement 4 states that: “Each RAS entity, within 120-full-calendar days of a RAS operation or a failure of its RAS to operate when expected, or on a mutually agreed upon schedule with its reviewing Reliability Coordinator(s), shall:”