Unofficial Comment Form
Project 2010-05.3 Phase 3 of Protection Systems: Remedial Action Schemes (RAS) PRC-012-2

DO NOT use this form for submitting comments. Use the electronic form to submit comments on draft 1 of PRC-012-2 – Remedial Action Schemes. The electronic comment form must be submitted by 8 p.m. Eastern, Wednesday, May 20, 2015.

For this informal posting, the drafting team is soliciting stakeholder feedback on the scope and work product developed thus far. The drafting team will use the informal feedback to finalize the preliminary draft of PRC-012-2. Stakeholders may communicate additional feedback directly to the drafting team through its open meetings leading up to the first formal posting. The next meeting is scheduled for June 8-11, 2015. Meeting details will be posted to the NERC calendar early May 2015.

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-005-2. PRC-012-2 addresses the testing of the non-Protection System components associated with RAS/SPS.

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 because they 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.
Questions

Requirements R1, R2, and R3 pertain to the submittal of Attachment 1 information to the Reliability Coordinator (RC) for the review of RAS, the RC using Attachment 2 as a guide for performing the RAS review, and the RC approving the RAS prior to the RAS being placed in-service. Questions 1-4 are relevant for these activities.

1. **RAS review and approval:** Do you agree that RAS should be reviewed and approved by an independent party prior to placing the RAS in-service? If no, please state the basis for your disagreement and an alternative approach.

☐ Yes
☒ No

Comments: The Transmission Planner or Planning Coordinator, where RAS impacts multiple Transmission Planners, is the correct function to determine where a RAS Scheme is required. The SDT has not justified why a review step is needed. No other Facility upgrade, installation or protection system addition requires a third party review. There is a planned Protection System Coordination Standard but that is very limited in its coordination. The need for an RAS is determined from TPL studies and planned system performance. The standard can provide the RC with an opportunity to provide opinion, but not approval. There is no need for a third party review.

2. **Information listed in Attachment 1:** Do you agree that the RAS information required in Attachment 1 is a comprehensive list? If no, please identify what other information you think is necessary for a thorough RAS review.

☐ Yes
☒ No

Comments: From the Attachment 1 introductory paragraph, “When a RAS has been previously reviewed, only the proposed modifications to that RAS require review; however, it will be helpful to the reviewers if the RAS entity provides a summary of the previously approved functionality.” In order to effectively review a proposed modification, a reviewer has to understand the original RAS functionality. Suggest changing the wording to “…however, the RAS entity must provide a summary of the previously approved functionality.” Requirement R1 and Attachment 1 mandate “Functionality of new RAS or proposed functional modification to existing RAS and documentation of the pre- and post-modified functionality of the RAS” is under I. General, and in Requirement R1 as information that has to be submitted. The wording in the introductory paragraph needs to be revised.

In the RAS Retirement Section suggest revising the wording of the second bullet to read:

A summary of applicable technical studies and technical justifications needs to be provided upon which the decision to retire the RAS is based.
The term “interconnected transmission system” in Section III, bullet 4, is not clear. This is critical as it would affect the redundancy requirement, especially to RAS installed only to mitigate local BES issues. “System”, being defined in the NERC Glossary, should be capitalized.

3. **Choice of Reliability Coordinator (RC):** Do you agree with the RC being the functional entity designated to review the RAS? If no, please provide the basis for your disagreement, your choice of functional entity to conduct the reviews, and the rationale for your choice.

   - [x] Yes
   - [ ] No

   Comments: The NERC Functional Model defines the RC as being “The functional entity that maintains the Real-time operating reliability of the Bulk Electric System within a Reliability Coordinator Area.” It is not responsible for the planning or installation of a Protection System. The NERC Functional Model does not support the RC as being the reviewer. The RC does not review nor have the approval authority over any other facility or protection system installation.

   A RAS needs to be categorized based on impact to facilitate who approves. A RAS that impacts one Transmission Planner only would be coordinated and approved by that Transmission Planner. A RAS that impacts multiple Transmission Planners would be referred to the Planning Coordinator that the Transmission Planners report to in the functional model. Where multiple Planning Coordinators are impacted, then suggest following the PRC-006 (UFLS) approach and require coordination of studies.

4. **Checklist in Attachment 2:** Do you agree that the checklist in Attachment 2 provides a comprehensive guide for the RC to facilitate a thorough RAS review? If no, please identify what other reliability-related considerations should be included in Attachment 2 and the rationale for your choice.

   - [x] Yes
   - [ ] No

   Comments: In the Determination of Review Level, the three conditions listed can occur at any time for the failure of a RAS to operate or operate inadvertently, thereby mandating that the entire checklist be followed.

   Attachment 2 states that the level of review may be limited if the system response for failure of the RAS to operate or inadvertent operation of the RAS does not result in certain significant conditions.
However, Attachment 2 does not explicitly describe what portions of Attachment 2 would be considered a limited review. It only states that if certain operating conditions are possible as the result of the failure to operate or inadvertent operation then the entire Attachment 2 checklist should be followed.

It must be recognized that the conditions in Attachment 2 are too broad for determining whether a full-scale or limited review is required. Specifically, the standard should quantify the load in the condition “unplanned tripping of load or generation.” This condition captures tripping of ultimately even very small generators and loads, i.e. the anticipated impact does not correlate with the required depth of the review. It is suggested to consider modification of this particular condition.

Elimination of Attachment 2 should be considered. The Planning Entity and Transmission Owner has the expertise per the Functional Model to develop a RAS.

Requirement R4 mandates the Transmission Planner perform a technical evaluation (planning analysis) of each RAS at least once every 60 full calendar months to verify the continued effectiveness and coordination of the RAS, as well as the BES performance following an inadvertent operation of the RAS.

The drafting team considered the RAS classification systems used by several Regions to be rooted in PRC-012, Requirement R1, R1.4. which reads: “Requirements to demonstrate that the inadvertent operation of a RAS shall meet the same performance requirement (TPL-001-0, TPL-002-0, and TPL-003-0) as that required of the contingency for which it was designed, and not exceed TPL-003-0.” Although, the drafting team is not proposing to use formal RAS classifications, the intent of PRC-012, Requirement R1, R1.4. is retained in Requirement 4 and Attachment 1.

Questions 5 and 6 pertain to these topics.

5. **Choice of Transmission Planner (TP):** Do you agree with the TP being the functional entity designated to evaluate the RAS? If no, please provide the basis for your disagreement, your choice of functional entity to conduct the evaluations, and the rationale for your choice.

☐ Yes
☐ No

Comments: In Requirement R4, the draft standard establishes Transmission Planners as being responsible for performing evaluations of each RAS in its planning area. However, a
mechanism/requirement for providing the TP with the required information from the Reliability Coordinator is not defined. Suggest rewording R4 to:

R4. Each Transmission Planner shall perform an evaluation of information provided by the Reliability Coordinator for each RAS within its planning area at...

6. **No RAS Classification:** Do you agree that the language of Requirement R4, its Parts, and Attachment 1 accomplish the objectives of RAS “classification” without having a formal RAS classification system in the standard? If no, please provide the basis for your disagreement and describe an alternate proposal.

☐ Yes
☒ No

Comments: Without defined “classifications”, all RAS require the same attention by the standard’s requirements.

It seems the ‘Determination of Review Level’ in Attachment 2 also accomplishes the objectives of RAS classifications by determining the level of system response (i.e. determining Significant vs. Limited).

However, the language of Requirement R4 and Attachment 1 (and Attachment 2 as indicated in the comment preceding) accomplish the objectives of RAS classification without having a formal RAS classification system.

This is particularly important to regions that already employ a classification system, thereby avoiding multiple and overlapping classifications.

A classification system is needed to easily communicate the risk and impact of a RAS. Classification, if included in the database, would facilitate an understanding of the risk posed by the various RAS schemes deployed in the BES. Without a classification system for RAS, all RASs are treated equally; this gives the RC (or whomever is eventually assigned responsibility for evaluating them) too much latitude in interpreting an adequate level of redundancy, which would almost invariably lead to inappropriate design.

Requirement R6 mandates each RAS-owner analyze each RAS operation or failure of a RAS to operate to identify performance deficiencies. Question 7 pertains to Requirement R6.

7. **RAS Operational Analyses:** Do you agree that the application of Requirement R6 and its Parts would identify performance deficiencies in RAS? If no, please provide the basis for your disagreement and an alternate proposal.
Comments: Similar to PRC-004-3 Protection System Misoperation Identification and Correction, when a RAS operates or fails to operate it should be reviewed. It is too simplistic to say each RAS-owner will analyze a RAS operation, especially if the RAS implicates components owned by different entities, like a TO, DP, GO, and where the appropriate entity to review system response is the TP and PC. We also suggest moving Parts 6.1 to 6.4 to either the Rationale for Requirement R6, or the Technical Guidelines and out of the requirement.

Agree with R6 as far as it goes. However, the RAS owner may not be in the position to evaluate Parts 6.3 and 6.4. The applicability of these sub-Parts should include the RC.

Requirements R5 and R7 pertain to the submittal of Corrective Action Plans (CAPs) to the Reliability Coordinator (RC) for review, and Requirement R8 mandates the implementation of each CAP. Question 8 addresses these requirements.

8. **Corrective Action Plans:** Do you agree that the application of Requirements R5, R7, and R8 would address the reliability objectives associated with CAPs? If no, please provide the basis for your disagreement and describe an alternate proposal.

Comments: In addition to the “six full calendar month(s)” submission periods, periods for acceptable implementation of the CAP should be specified. A statement should be included in requirement R5 to address the situation when a RAS-owner disagrees with the Transmission Planner’s evaluation of a RAS.

Requirement R7 should be changed from “submit Corrective Action Plan to its reviewing Reliability Coordinator(s)” to “RAS-entity provide notice to the affected RC and TOP of the deficiency and when the deficiency is planned to be corrected”. This is good practice to keep operators aware of a change in RAS performance.

A requirement should be added to notify the RC and TOP when the RAS is performing correctly after the CAP has been completed.

Requirement R9 mandates each RAS-owner periodically perform a functional test of each RAS to verify the overall RAS performance and the proper operation of non-Protection System components. Question 9 pertains to Requirement R9.
9. **Functional Testing of RAS**: Do you agree that functional testing of each RAS would verify the overall RAS performance and the proper operation of non-Protection System components? If no, please provide the basis for your disagreement and describe an alternate proposal.

☐ Yes  
☐ No  

Comments: We agree with the segmented testing approach. A Technical Guideline may be required to explain how the six year cycle is measured when allowing segmented testing. Segmented testing can test all components of an RAS every six years, but an individual component could end up being tested once every 10 years; for example, tested in year 1 and year 10.

Requirements R10 and R11 pertain to the RAS database, Attachment 3, and the sharing of RAS information for reliability-related needs. Questions 10, 11, 12, and 13 pertain to these topics.

10. **Choice of Reliability Coordinator (RC)**: Do you agree with the RC being the functional entity designated to maintain the RAS database in Requirement R10? If no, please provide the basis for your disagreement, your choice of functional entity, and the rationale for your choice.

☐ Yes  
☐ No  

Comments: This could be the RC or PC; both have a need to know the location and performance characteristics.

11. **Information listed in Attachment 3**: Do you agree that the RAS information required in Attachment 3 (Requirement R10) provides the RC with enough detail of each RAS to meet its reliability-related needs? If no, please identify what other reliability-related information should be included in Attachment 3 and the rationale for your choice.

☐ Yes  
☐ No  

Comments: The wording of the lengths of time for meeting a requirement should be consistent. Requirement R4 specifies 60 full calendar months, Attachment 3 Item 3 refers to a 5-year evaluation date.

12. **Requirement R11**: Do you agree that there a reliability benefit to Requirement R11? Please provide the rationale for your answer.

☐ Yes
☐ No
Comments: Is a request to provide information for the database described in R10 supposed to start the 30-day clock indicated in requirement R11? If so, that should be made clear.

13. **Choice of RAS-entity**: Do you agree with the RAS-entity being the entity designated to provide the detailed RAS information to other registered entities with a reliability-related need in Requirement R11? If no, please provide the basis for your disagreement, your choice of entity, and the rationale for your choice.

☐ Yes
☐ No
Comments:

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

Comments: The definitions for “Functionally Modified” as used in Attachments 1 and 2 should be included in definitions specifically used in this standard, and not in footnotes.

“Power System” is used throughout the body of the standard. Should it be Bulk Electric System?

Requirement R2 stipulates that each reviewing Reliability Coordinator has four calendar months, or on a mutually agreed upon schedule after receipt of Attachment 1 materials to perform a review of the RAS in accordance with Attachment 2. There should be an upper bound put on a mutually agreed upon schedule to prevent excessively long times for this review to take place.

Requirement R5, as written, suggests that independent Corrective Action Plans should be submitted by each RAS-owner. It is proposed to change this to “RAS-entity,” “RAS-entity in coordination with all RAS-owners” or “all RAS-owners shall jointly”.

Requirement R6, as written, suggests that independent analyses should be performed by each RAS-owner. It is proposed to change this to “RAS-entity,” “RAS-entity in coordination with all RAS-owners” or “all RAS-owners shall jointly”.

Requirement R7, as written, suggests that independent Corrective Action Plans should be submitted by each RAS-owner. It is proposed to change it to “RAS-entity”, “RAS-entity in coordination with all RAS-owners” or “All RAS-owners shall jointly”.

Requirement R9 stipulates that “At least once every six calendar years, each RAS-owner shall perform a functional test of each RAS to verify the overall RAS performance and the proper operation of non-Protection System components.” An overall test includes Protection System components, as well as non-Protection System components, and operating any system equipment. Is this the intent of the Requirement?