Unofficial Comment Form
Project 2015-10 Single Points of Failure – TPL-001

Do not use this form for submitting comments. Use the electronic form to submit comments on the Project 2015-10 Single Points of Failure Standard Authorization Request (SAR). Comments must be submitted by 8 p.m. Eastern, Thursday, December 17, 2015.

Documents and information about this project are available on the project page. If you have questions, contact Katherine Street (via email) or by telephone at (404)-446-9702.

Background Information
This posting is soliciting informal comment on the SAR.

The purpose of the proposed project is to draft a SAR to address the findings of the System Protection and Control Subcommittee (SPCS) and the System Modeling and Analysis Subcommittee (SAMS) assessment of protection system single points of failure, conducted in response to FERC Order No. 754, including analysis of data from the NERC Rules of Procedure Section 1600 Request for Data or Information. The assessment confirms the existence of a reliability risk associated with single points of failure in protection systems that warrants further action.

As such, regarding single points of failure in protection systems, the SPCS and the SAMS proposed the following recommendations for modifying NERC Reliability Standard TPL-001-4 (Transmission System Planning Performance Requirements) through the NERC standards development process identified in the NERC Rules of Procedure:

- For Table 1 – Steady State & Stability Performance Planning Events, Category P5:
  - Replace “relay” with “component of a Protection System,” and
  - Add superscript “13” to reference footnote 13 for the replaced term under the “Category” column.
- For Table 1 – Steady State & Stability Performance Extreme Events, under the Stability column, No. 2:
  - Remove the phrase “or a relay failure” from items a, b, c, and d to create distinct events only for stuck breakers.

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1 In Order No. 754, the Commission expressed its concern that there was an issue concerning the study of a single point of failure on protection systems. To address this issue, the Commission directed FERC staff to meet with NERC and its appropriate subject matter experts to explore this reliability concern. The Commission also directed NERC to submit an informational filing within six months explaining whether there is a further system protection issue that needs to be addressed and if so, what forum and process should be used to address it and what priority it should be afforded. See Interpretation of Transmission Planning Reliability Standard, Order No. 754, 136 FERC ¶ 61,186 at PP 19-20 (2011).
Append four new events for the same items a, b, c, and d in the above bulleted item to create distinct events replacing “a relay failure” with “a component failure of a Protection System.”

Replace footnote 13 in TPL-001-4 with, “The components from the definition of “Protection System” for the purposes of this standard include (1) protective relays that respond to electrical quantities, (2) single-station DC supply that is not monitored for both low voltage and open circuit, with alarms centrally monitored (i.e., reported within 24 hours of detecting an abnormal condition to a location where corrective action can be initiated), and (3) DC control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.”

Modify TPL-001-4 (Part 4.5) so that extreme event assessments must include evaluation of the three-phase faults the described component failures of a Protection System\textsuperscript{13} that produce the more severe system impacts. For example, add a new second sentence that reads “[t]he list shall consider each of the extreme events in Table 1 – Steady State & Stability Performance Extreme Events; Stability column item number 2.”

Questions

1. Do you agree with the scope and objectives of the SAR? If not, please explain why you do not agree and, if possible, provide specific language revisions that would make it acceptable to you.

☐ Yes
☐ No

Comments:

While we generally support the scope and direction proposed in the SAR, some of the proposed changes to TPL-001-4 described in the SAR (and in this Comment Form) are unclear. Hence, we reserve our judgment on the final scope and the specific changes that will be made to the TPL-001-4 standard. For example, the replacement of FN 13 with the proposed language fails to mention of the placement of the functions or types of relay that will be replaced. We believe it should be more specific.

The meaning of the phrase “evaluation of the three-phase faults the described component failures of a Protection System” in the last bulleted proposed change is unclear. Does it mean evaluation of a three phase fault combined with the component failure of a Protection System? This needs to be clarified.

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2. If you have any other comments on this SAR that you haven’t already mentioned above, please provide them here:

Comments:

When a standard is being revised, all open issues related to that standard should be resolved. In the interest of efficiency we recommend that the two directives from FERC Order 786 be added to the scope of this SAR. For reference please see the Reliability Standards Development Plan 2016 Projects 2015-10: “From FERC Order 786:

1. Paragraph 40 directs NERC to modify Reliability Standard TPL-001-4 to address the concern that the six-month threshold could exclude planned maintenance outages of significant facilities from future planning assessments.
2. 2. Paragraph 89 directs NERC to consider a similar spare equipment strategy for stability analysis upon the next review cycle of Reliability Standard TPL-001-4.”

The SAR should address all directives and all changes needed in the standard.

Additional points needing clarifications which should be added to the scope of the SAR and provide needed corrections to TPL-004-1 include:

1. The SAR requires studying three phase faults with protection system failure. It is not clear how the protection systems deficiencies will be corrected, when identified, since there is no obligation to the meet performance criteria for extreme events.

2. The revised standard should formalize the process described in the Assessment of Protection System Single Points of Failure Based on the Section 1600 Data Request that was used to identify the protection systems that do not meet the redundancy criteria. The protection systems owners will need to have obligations since they are responsible for both identifying and correcting the design deficiencies.

3. There are situations when non BES elements are connected to BES buses (e.g. radial circuits supplying loads). The SAR needs to clarify which protection systems are subject to the standard since an un-cleared close in fault on a non BES element connected to a BES bus has the same reliability consequence as an un-cleared close in fault on a BES
element. Do the protection systems installed on non BES elements but connected to BES buses need to meet redundancy criteria?

4. Since the TPL-001-4 standard is going to be revised we believe there is a good opportunity to clarify the following discrepancy:
   In Table 1 of the standard, the use of non-consequential load loss is allowed under Footnote 12 conditions for P1, P2, and P3 planning events for the elements operated at EHV level. However, planning events P4 and P5 do not allow the use of non-consequential load loss at EHV level.