NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Implementation Plan

Project 2015-10 Single Points of Failure
Reliability Standard TPL-001-5

Applicable Standard(s)

- TPL-001-5 – Transmission System Planning Performance Requirements

Requested Retirement(s)

- TPL-001-4 – Transmission System Planning Performance Requirements

Prerequisite Standard(s)

None

Applicable Entities

- Planning Coordinator
- Transmission Planner

Background

Reliability Standard TPL-001-5 revises the prior version of the TPL-001 standard in three key respects:

- To address reliability issues concerning the study of single points of failure ~~on~~in Protection Systems, as identified in~~-~~:
  - Federal Energy Regulatory Commission (FERC) Order No. 754, issued on September 15, 2011~~,~~; and
  - the report dated September 2015 by two subcommittees under NERC Planning Committee , the System Protection and Control Subcommittee and System Analysis and Modeling Subcommittee ~~September 2015 report~~, titled *Assessment of Protection System Single Points of Failure Based on the Section 1600 Data Request;*
- To address directives from FERC Order No. 786 ~~issued~~ (October 17, 2013~~, in which FERC approved~~) approving Reliability Standard TPL-001-4, relating to:
  - modeling known outages with a duration of less than six months~~;~~ (paragraph 40); and
  - adding stability analysis for the outage of major Transmission ~~E~~equipment with a lead time of one year or more~~.~~ (paragraph 89); and;
- To replace references to the Reliability Standards MOD-010 and MOD-012 ~~standards~~, which have been superseded by ~~the~~ MOD-032 ~~Reliability Standard~~.

General Considerations

~~This implementation plan provides 36 months until the~~The standard will become effective ~~date of the Standard, providing~~36 months following regulatory approval. The 36-month period provides time for Planning Coordinators and Transmission Planners ~~with time to update their annual Planning Assessments to include the new System models and studies required by the standard. This implementation period reflects consideration that Planning Coordinators and Transmission Planners will need time~~ to develop, among other things:

- A procedure or technical rationale for selecting known outages of generation and Transmission Facilities;
- ~~A process for establishing coordination~~Coordination with protection engineers to obtain the necessary data to perform the single points of failure analysis required by the standard; and
- Additional ~~base case models and~~ analysis~~.~~ required due to changes in the standard.

~~In addition,~~
Following this ~~implementation plan includes~~36 month period, an additional 24-month period allows time for the development of Corrective Action Plans (CAPs) under TPL-001-5 ~~to address newly-added studies~~ for Category P5~~ and P8~~ planning events involving single points of failure ~~on~~in Protection Systems.

~~This extended implementation period for the~~Transmission Planners and Planning Coordinators shall have an additional 48 months beyond the time by which CAPs must be developed to comply with the bolded part of Requirement R2, Part 2.7 that states: "Revisions to the Corrective Action Plan(s) are allowed in subsequent Planning Assessments **but the planned System shall continue to meet the performance requirements in Table 1**~~", acknowledges that failures to meet System performance requirements, identified during subsequent Planning Assessment(s), for single points of failure in Protection Systems may not be mitigated by an Operating Procedure during an interim period before a mitigating capital improvement is installed~~" for P5 planning events for non-redundant components of a Protection System identified in footnote 13 items a, b, c, and d.

This implementation ~~period~~plan reflects consideration that Planning Coordinators and Transmission Planners will need time ~~beyond that provided~~ to conduct the new studies and ~~analysis~~analyses in order to ~~develop processes for coordination~~coordinate with asset owners and protection engineers to identify appropriate CAP actions and establish the associated timetables for completion. This includes any necessary CAP(s) to address System performance issues for studies involving Table 1 Category P5~~ and P8 Multiple Contingency~~ (Fault plus non-redundant component of a Protection System failure to operate) required by TPL-001-5 Requirement R2, Part 2.7 for the non-redundant components of a Protection System identified in TPL-001-5 Table 1 Footnote 13.

~~Lastly, the provisions related to CAP including Non-Consequential Load Loss and curtailment of Firm Transmission Service (in accordance with Requirement R2, Part 2.7.3) are carried forward from the TPL-001-4 implementation plan.~~
Please see Figure 1 Implementation Timeline below for an illustration of the 108-month implementation timeline in those jurisdictions where governmental approval is required.

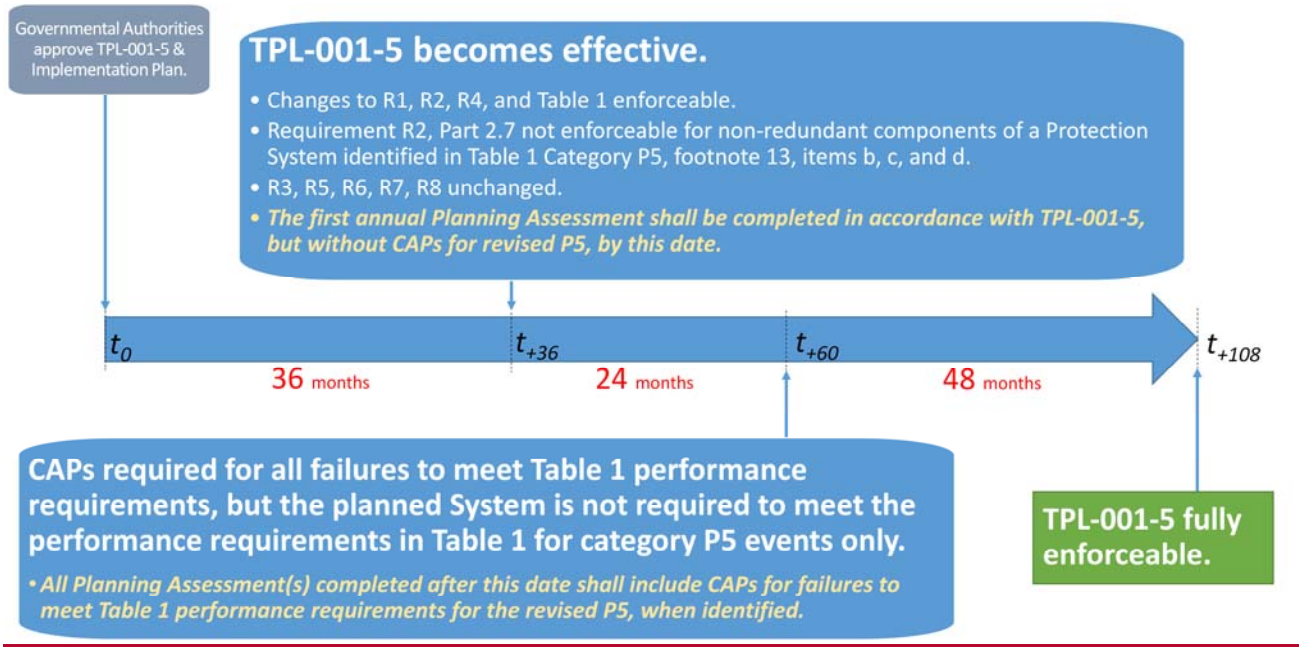

Figure 1 Implementation Plan Timeline

Effective Date

TPL-001-5 – Transmission System Planning Performance Requirements

Where approval by an applicable governmental authority is required, the standard shall become effective on the first day of the first calendar quarter that is 36 months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is 36 months after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Compliance Date for TPL-001-5 Requirement 2, Part 2.7 associated with Table 1 Category P5 Footnote 13 items a, b, c, and d ~~and P8~~

Entit~~l~~ies shall not be required to comply with Requirement R2, Part 2.7 for the Table 1 Category P5 planning event for the non-redundant components of a Protection System identified in footnote 13 items a, b, c, and d ~~or P8~~ until 24 months after the effective date of Reliability Standard TPL-001-5.

For CAPs developed to address failures to meet Table 1 performance requirements for ~~P5 or P8 events only, Transmission Planners~~the P5 planning event for the non-redundant components of a Protection System identified in footnote 13 items a, b, c, and ~~Planning Coordinators~~d, entities shall not be required to comply until 72 months after the effective date of Reliability Standard TPL-001-5 with the ~~section~~bolded part of Requirement R2, Part 2.7 that states: "Revisions to the Corrective Action Plan(s) are allowed in subsequent Planning Assessments **but the planned System shall**

continue to meet the performance requirements in Table 1~~", until 96 months after the effective date of Reliability Standard TPL-001-5."~~

~~**Note Regarding CAPs**~~

~~For 84 calendar months beginning the first day of the first calendar quarter following applicable regulatory approval of TPL-001-4, or in those jurisdictions where regulatory approval is not required on the first day of the first calendar quarter 84 months after Board of Trustees adoption or as otherwise made effective pursuant to the laws applicable to such ERO governmental authorities, CAP applying to the following categories of Contingencies and events identified in TPL-001-5, Table 1 are allowed to include Non-Consequential Load Loss and curtailment of Firm Transmission Service (in accordance with Requirement R2, Part 2.7.3.) that would not otherwise be permitted by the requirements of TPL-001-5:~~

- ~~P1-2 (for controlled interruption of electric supply to local network customers connected to or supplied by the Faulted element)~~
- ~~P1-3 (for controlled interruption of electric supply to local network customers connected to or supplied by the Faulted element)~~
- ~~P2-1~~
- ~~P2-2 (above 300 kV)~~
- ~~P2-3 (above 300 kV)~~
- ~~P3-1 through P3-5~~
- ~~P4-1 through P4-5 (above 300 kV)~~
- ~~P5 (above 300 kV)~~

Initial Performance of Periodic Requirements

Each responsible entity shall complete the first annual Planning Assessment ~~without CAPs for revised P5 or P8~~ in accordance with TPL-001-5 (without CAP(s) for the revised P5 planning event) by the effective date of the standard.

Each responsible entity shall develop any required CAP(s) under Requirement R2, Part 2.7 associated with the non-redundant components of a Protection System identified in Table 1 Category P5 Footnote 13 items a, b, c, and d ~~and P8~~ by 24 months after the effective date of ~~Reliability Standard TPL-001-5~~the standard.

Retirement Date

TPL-001-4 – Transmission System Planning Performance Requirements

Reliability Standard TPL-001-4 shall be retired immediately prior to the effective date of TPL-001-5 in the particular jurisdiction in which the revised standard is becoming effective.