NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Note: an Interpretation cannot be used to change a standard.

Request for an Interpretation of a Reliability Standard

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Contact information for person requesting the interpretation:

Name: Sandra Shaffer

Organization: PacifiCorp

Telephone: 503.813.5219

E-mail: sandra.shaffer@pacificorp.com

Identify the standard that needs clarification:

TPL-002-A

Standard Title: System Performance Following Loss of a Single Bulk Electric System Element (Category B)

Identify specifically what needs clarification (If a category is not applicable, please leave it blank)**:**

Requirement Number and Text of Requirement: R1.3.10. Include the effects of existing and planned protection systems, including any backup or redundant systems.

Clarification needed: Does TPL-002-0 R1.3.10 require that all elements that are expected to be removed from service through normal operation of the protection systems be removed in simulations?

Is a Category B disturbance limited to faults with normal clearing where the protection system operates as designed in the time expected with proper functioning of the protection system(s) or do Category B disturbances extend to protection system miss-operations and failures?

Does TPL-002-0 R1.3.10 require that planning for Category B contingencies assume a contingency that results in something other than a normal clearing event even though the TPL-002-0 Table I - Category B matrix uses the phrase "SLG or 3-Phase Fault, with Normal Clearing"?System Performance Following Loss of a Single Bulk Electric System Element (Category B)

Identify the material impact associated with this interpretation:

If TPL-002-0 R1.3.10 requires that planning for Category B contingencies must assume failure or misoperation of all existing and planned protection systems, protection system failures previously identified as Category C 6-9 contingencies or Category D 1-4

contingencies would now become Category B contingencies, and would be required to meet this higher standard for both SLG faults and 3-Phase faults. PacifiCorp believes this would result in the need for Transmission Providers to significantly increase their investment in the BES without a proportional improvement in overall transmission system reliability

Project 2009-14: Response to Request for an Interpretation of TPL-002-0a Requirement R1.3.10 for PacifiCorp

The following interpretation of TPL-002-0a — System Performance Following Loss of a Single Bulk Electric System Element was developed by a subset of the Assess Transmission Future Needs Standards Drafting Team.

Requirement Number and Text of Requirement

R1.3. Be supported by a current or past study and/or system simulation testing that addresses each of the following categories, showing system performance following **Category B of Table 1** (single contingencies). The specific elements selected (from each of the following categories) for inclusion in these studies and simulations shall be acceptable to the associated Regional Reliability Organization(s).

> **R1.3.10.** Include the effects of existing and planned protection systems, including any backup or redundant systems.

Background Information for Interpretation

Requirement R1.3 and sub-requirement R1.3.10 of standard TPL-002-0a contain three key obligations:

1. That the assessment is supported by "study and/or system simulation testing that addresses each the following categories, showing system performance following Category B of Table 1 (single contingencies)."
2. "…these studies and simulations shall be acceptable to the associated Regional Reliability Organization(s)."
3. "Include the effects of existing and planned protection systems, including any backup or redundant systems."

Category B of Table 1 (single Contingencies) specifies:

Single Line Ground (SLG) or 3-Phase (3Ø) Fault, with Normal Clearing:
1. Generator
2. Transmission Circuit
3. Transformer

Loss of an Element without a Fault.

Single Pole Block, Normal Clearing[e]:
4. Single Pole (dc) Line

Note e specifies:
e) Normal Clearing is when the protection system operates as designed and the Fault is cleared in the time normally expected with proper functioning of the installed protection systems. Delayed clearing of a Fault is due to failure of any protection system component such as a relay, circuit breaker, or current transformer, and not because of an intentional design delay.

The NERC Glossary of Terms defines Normal Clearing as "A protection system operates as

designed and the fault is cleared in the time normally expected with proper functioning of the installed protection systems."

Conclusion

TPL-002-0a requires that System studies or simulations be made to assess the impact of single Contingency operation with Normal Clearing. TPL-002-0a R1.3.10 does require that all elements expected to be removed from service through normal operations of the Protection Systems be removed in simulations.

This standard does not require an assessment of the Transmission System performance due to a Protection System failure or Protection System misoperation. Protection System failure or Protection System misoperation is addressed in TPL-003-0 — System Performance following Loss of Two or More Bulk Electric System Elements (Category C) and TPL-004-0 — System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D).

TPL-002-0a R1.3.10 does not require simulating anything other than Normal Clearing when assessing the impact of a Single Line Ground (SLG) or 3-Phase (3Ø) Fault on the performance of the Transmission System.

In regards to PacifiCorp's comments on the material impact associated with this interpretation, the interpretation team has the following comment:

Requirement R2.1 requires "a written summary of plans to achieve the required system performance," including a schedule for implementation and an expected in-service date that considers lead times necessary to implement the plan. Failure to provide such summary may lead to noncompliance that could result in penalties and sanctions.