



NORTHEAST POWER COORDINATING COUNCIL, INC.
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October 3rd, 2016

Subject: TFSP Criteria Clarification---NPCC Directory#4 *System Protection Criteria*.

NPCC Full Member Representatives and Alternates:

In accordance with the NPCC *Directory Development and Revision Manual* the Task Force on System Protection (TFSP) has considered a *Request for Criteria Clarification* and has provided the attached response.

The TFSP clarification provides guidance on the criteria as it pertains to the design of breaker failure protection as contained in Section 5.2 and Section 5.15 of the Directory.

Comments on this clarification will be received for forty- five days through November 17th, 2016.

The NPCC Open Process can be accessed through the following link:

<https://www.npcc.org/Standards/SitePages/NonStandardsList.aspx>

In accordance with the Directory manual the final Clarification will be presented to the Reliability Coordinating Committee (RCC) for approval.

Please contact me with any questions regarding Directory content or comment procedures.

Thank you.

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NPCC Request for Criteria Clarification

Note: A Clarification cannot be used to revise the Criteria within a Directory.

Request for a Clarification of Criteria
Date submitted: 08/17/16
Contact information for person requesting the clarification:
Name: George Wegh
Organization: Eversource Energy
Telephone: 860-728-6179
E-mail: george.wegh@eversource.com
Identify the Directory that contains the Criteria requiring clarification:
Directory Number: Directory#4
Directory Title: <i>Bulk Power System Protection Criteria</i>
Identify specifically what portion of the Criteria needs clarification:
<p><u>Text of Criteria Requirement:</u></p> <p>5.2.2.1 Each protection group shall be supplied from its own DC circuit and that DC circuit shall not be used in any other protection group protecting the same element. Any non-protection control or monitoring circuits shall be supplied from a separately protected DC circuit. Non-protection control or monitoring circuits include but are not limited to closing, reclosing, SCADA, and DME functions.</p>

Text of Criteria Requirement:

5.15.3 For redundant breaker failure protections, system 1 breaker failure protection shall only operate system 1 trip coil of the associated backup breakers needed to clear the fault and system 2 breaker failure protection shall only operate system 2 trip coil of the associated backup breakers needed to clear the fault.

Identify the material impact associated with the lack of clarity:

Identify the material impact to your organization or others caused by the lack of clarity or an incorrect interpretation of this Directory:

The present wording of 5.2.2.1 does not specifically address the use of a non-redundant breaker failure protection system to also incorporate monitoring functionality for both the System 1 and System 2 trip coils.

The present wording of section 5.15 and specifically section 5.15.3 infers, by exclusion, that it is allowable to trip both the system 1 and system 2 trip coils of a breaker from a non-redundant breaker failure protection system.

Thus it is unclear if a non-redundant breaker failure protection system could also serve as a trip coil monitor for all trip coils of an associated breaker it is designed to trip.

This could potentially be more cost effective and efficient than installing separate trip coil monitoring devices for each trip coil supplied from a separately protected DC circuit.

Task Force Response to Request for Criteria Clarification: Directory#4 for Eversouce Energy

The following clarification of the criteria in Directory#4 was developed by the Task Force on System Protection (TFSP).

Directory Number and Clarification Request:

NPCC Directory#4 *System Protection Criteria:*

Question 1: Is it the intent of requirement 5.15 and specifically, 5.15.3 to allow, by exclusion, a non-redundant breaker failure protection system design that trips both the system 1 and system 2 trip coils of any breaker it is designed to trip?

TFSP Response to Question 1:

TFSP has in the past accepted non-redundant breaker failure protection that trips both the system 1 and system 2 trip coils of an adjacent breaker.

TFSP will continue to accept this practice for non-redundant breaker failure protection. However, TFSP recommends galvanic isolation and physical separation of the tripping circuits.

Question 2: Is it the intent of requirement 5.2.2.1 to prohibit the use of a non-redundant breaker failure protection system to also monitor the System 1 and System 2 trip coils of the breakers it is designed to trip, even though it may be wired into the DC tripping circuit of both trip coils by design.

TFSP Response to Question 2:

Yes.

Trip coil monitoring was introduced as a new requirement in 2015. It was not the intent of the criteria that this should introduce new single points of failure.

Thus, both System 1 and System 2 trip coils shall not be monitored in a single protective relay, which include non-redundant breaker failure protection.