

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

FERC Order No. 754

The Study of Protection System Single Point of Failure

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i-PCGRID Conference 2014

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RELIABILITY | ACCOUNTABILITY



- Approved interpretation of TPL-002-0a for PacifiCorp
 - The standard does not require an assessment of Protection System failure or Protection System misoperation
 - Addressed in TPL-003-0a and TPL-004-0
 - R1.3.10 only requires simulating Normal Clearing when assessing the impact of Single Line Ground (SLG) or 3-Phase (3Ø) Faults
- Noted a reliability concern at P.19
 - The Commission believes there is an issue concerning the study of a single point of failure on protection systems
- Directed exploration of this reliability concern at P.20
 - FERC staff to meet with NERC and appropriate subject matter experts to explore the reliability concern

- FERC Technical Conference held October 24-25, 2011
- Discussions included open exchange among FERC staff, NERC staff, and industry stakeholders
- Consensus Points
 - Performance based issue, not full redundancy issue
 - Existing approved standards address requirements to assess single point of failure
 - Assessments of single point of failure of non-redundant primary protection (including backup) systems need to be sufficiently comprehensive
 - Lack of sufficiently comprehensive assessments of non-redundant primary protection systems is a reliability concern

- Problem Statement

- “The group perceives a reliability concern regarding the comprehensive assessment of potential protection system failures by registered entities. The group agrees on the need to study if a gap exists regarding the study and resolution of a single point of failure on protection systems.”

- Potential Approaches to Address the Concern

- Data Request – Identify elements on which a three-phase fault accompanied by a protection system single point of failure could result in a potential reliability risk
- Interpretation Request – Clarify the extent to which TPL-003-0a and TPL-004-0 require assessment of protection system single point of failure
- Project 2009-07 – Consideration deferred pending assessment of results from the first two approaches

- NERC developed the data request between December 2011 and July 2012
 - Enlisted support of subject matter experts in planning and protection
 - System Analysis and Modeling Subcommittee (SAMS)
 - System Protection and Control Subcommittee (SPCS)
 - Obtained stakeholder input through two postings
- Approved by the NERC Board of Trustees on August 16, 2012
- The data request seeks information with sufficient detail to allow NERC to:
 - Assess whether a reliability gap exists that needs to be addressed and, if so, to
 - Develop appropriate measures tailored to address the concern

- Data Request approved by NERC Board of Trustees on August 16, 2012
- Effective Date: September 1, 2012

Reporting Deadline	Activity
October 5, 2012	Transmission Planners must acknowledge the request for data
March 4, 2013	Transmission Planners must submit a status report stating percent of work complete
October 2, 2013	Transmission Planners must report data for buses operated at 300 kV or higher
March 3, 2014	Transmission Planners must report data for buses operated at 200 kV or higher and below 300 kV
September 30, 2014	Transmission Planners must report data for buses operated at 100 kV or higher and below 200 kV

- SPCS and SAMS members supporting review
 - Initial review of data for 300 kV and higher suggests a reliability concern
 - Exploring possible measures – appropriate and focused
- Review will include lower voltage levels
 - 200-300 kV data due March 3 – presently initiating review
 - 100-200 kV data due September 30
- SPCS and SAMS will provide additional information to the NERC Planning Committee in June

- Available at the NERC Order 754 Project web page:
http://www.nerc.com/pa/Stand/Pages/order_754.aspx
- NERC will periodically communicate information for various activities, reporting, and deadlines throughout the data request period
- Please submit any questions to DataRequest754@nerc.net



Questions and Answers