

Implementation Plan

Project 2010-05.1 – Protection Systems: Phase 1 (Misoperations)

Requested Approvals

- PRC-004-3 – Protection System Misoperation Identification and Correction
- Definitions of “Composite Protection System” and “Misoperation”

Requested Retirements

- PRC-003-1 – Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection System
- PRC-004-2.1a – Analysis and Mitigation of Transmission and Generation Protection System Misoperations

Prerequisite Approvals

- None

Revisions to Defined Terms in the NERC Glossary

The standard drafting team proposes the following new definition:

Composite Protection System:

The total complement of Protection System(s) that function collectively to protect an Element. Backup protection provided ~~to~~by a ~~remote~~different Element’s Protection System(s) is excluded.

The standard drafting team proposes the following revised definition:

Misoperation:

The failure of a Composite Protection System to operate as intended for protection purposes. Any of the following is a Misoperation:

1. **Failure to Trip – During Fault** – A failure of a Composite Protection System to operate for a Fault condition for which it is designed. The failure of a Protection System component is not a Misoperation as long as the performance of the Composite Protection System is correct.
2. **Failure to Trip – Other Than Fault** – A failure of a Composite Protection System to operate for a non-Fault condition for which it is designed, such as a power swing, undervoltage, overexcitation, or loss of excitation. The failure of a Protection System component is not a

Misoperation as long as the duration of its operating time resulted in performance of the operation of at least one other Element's Composite Protection System is correct.

3. **Slow Trip – During Fault** – A Composite Protection System operation that is slower than required for a Fault condition if the duration of its operating time resulted in the operation of at least one other Element's Composite Protection System.
4. **Slow Trip – Other Than Fault** – A Composite Protection System operation that is slower than required for a non-Fault condition, such as a power swing, undervoltage, overexcitation, or loss of excitation if the duration of its operating time resulted in the operation of at least one other Element's Composite Protection System.
5. **Unnecessary Trip – During Fault** – An unnecessary Composite Protection System operation for a Fault condition on another Element.
6. **Unnecessary Trip – Other Than Fault** – An unnecessary Composite Protection System operation for a non-Fault condition. A Composite Protection System operation that is caused by personnel during on-site maintenance, testing, inspection, construction or commissioning activities is not a Misoperation.

General Considerations

The implementation period allows adequate time for applicable entities to develop or modify its procedures and processes for reviewing Protection System operations. The development and implementation of a Corrective Action Plan remains within the scope of PRC-004; therefore, little additional time and resources should be needed to account for the increased detail in the required performance identified in the proposed PRC-004-3 Reliability Standard. The obligation for reporting Misoperations has been removed from PRC-004 and is being developed under the NERC Rules of Procedure, Section 1600 – Request for Data or Information.

Applicability

This standard applies to the following functional entities:

- Transmission Owner
- Generator Owner
- Distribution Provider

This standard applies to the following Facilities:

- Protection Systems for BES Elements. ~~Non-protective functions that are embedded within a Protection System are excluded. Protective functions intended to operate as a control function during switching are excluded.~~ with the following exclusions:
 - Non-protective functions that are embedded within a Protection System.
 - Protective functions intended to operate as a control function during switching.
 - Special Protection Systems (SPS).
 - Remedial Action Schemes (RAS).
- Underfrequency load shedding (UFLS) that is intended to trip one or more BES Elements.

Effective Dates of New or Revised Standards and Definitions

The standard, the revised definition of “Misoperation”² and the new definition of “Composite Protection System” shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date that the standard is approved by an applicable governmental authority or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard, the revised definition of “Misoperation”² and the new definition of “Composite Protection System” shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date the standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

Retirement of Existing Standards

The existing standards, PRC-003-1 and PRC-004-2.1a, shall be retired at midnight of the day immediately prior to the Effective Date of PRC-004-3.