

Implementation Plan

Project 2019-04 Modifications to PRC-005-6

Applicable Standard(s)

- Reliability Standard PRC-005-7 — Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance

Requested Retirement(s)

- Reliability Standard PRC-005-6 — Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance
- PRC-005-1.1b – Transmission and Generation Protection System Maintenance and Testing
- PRC-008-0 – Implementation and Documentation of Underfrequency Load Shedding Equipment Maintenance Program
- PRC-011-0 – Undervoltage Load Shedding System Maintenance and Testing
- PRC-017-0 – Special Protection System Maintenance and Testing

Applicable Entities

- Transmission Owner
- Generator Owner
- Distribution Provider
- UFLS-only Distribution Provider

Modified and Retired Terms in the NERC Glossary of Terms

This section includes all revised or retired terms used or eliminated in the NERC Reliability Standard. Revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Proposed Modified Definitions:

Protection System – One or more of the following components:

- Protective relays and components of control systems which respond to measured electrical quantities and provide protective functions;
- Communications systems necessary for correct operation of protective functions;
- Voltage and current sensing devices providing inputs necessary for the correct operation of protective functions;

- Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply); and/or
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Background

Generator excitation systems and voltage regulators are capable of monitoring electrical quantities, such as voltage or current, and responding to those quantities, by causing a trip of the generator in response to these signals. These embedded protective functions, if enabled, would be included in the scope of Reliability Standard PRC-005-6 as set out in the Applicability section of the standard. However, there is significant confusion throughout the industry regarding the applicability of protective functions inside synchronous generator excitation systems to PRC-005. Consequently, in May 2019, the North American Generator Forum (NAGF) submitted a Standard Authorization Request (SAR) to NERC requesting revisions be made to PRC-005-6 that would provide clear and unambiguous language within the standard pertaining to the applicability of protective functions within an Automatic Voltage Regulator (AVR) and any maintenance requirements (activities and intervals) associated with those protective functions.

This Implementation Plan addresses the implementation of changes related to:

- Bulk Electric System (BES) protective functions enabled within analog/digital AVRs, excitation systems, and BES protective functions enabled within control systems that respond to measured BES electrical quantities and trip BES Elements either directly or via lockout or auxiliary tripping relays are within the scope of the standard and include updates to associated maintenance tables as necessary.
- New dc supplies (e.g., lithium ion, flow) for Protection Systems in the maintenance tables.
- Entities registered as UFLS-Only Distribution Providers in the Applicability section to be consistent with changes made to the NERC's FERC-approved Risk-Based Registration.
- The revised Applicability Section provides specificity and removes ambiguity.
- Defined terms.
- Modification of maintenance activities and intervals in the maintenance tables.

Additionally, the PRC-005-6 Supplementary Reference and FAQ was revised to align with all revisions made to the standard.

General Considerations:

The implementation plan for PRC-005-6 provided compliance dates for Sudden Pressure Relaying, Automatic Reclosing, and dispersed generation resources. Entities are currently subject to implementation requirements under the PRC-005-6 implementation plan, which incorporated the

PRC-005-2(i) implementation plan by reference for Components first addressed in that standard. Those prior implementation requirements are carried forward in this plan.

Each Transmission Owner, Generator Owner, Distribution Provider, and UFLS-Only Distribution Provider shall maintain documentation to demonstrate compliance with PRC-005-1.1b, PRC-008-0, PRC-011-0, and PRC-017-0 until that entity meets all of the requirements of PRC-005-7 in accordance with this implementation plan.

While registered entities are implementing the requirements of PRC-005-7, each registered entity must be prepared to identify whether its applicable Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components were last maintained according to PRC-005-1.1b, PRC-008-0, PRC-011-0, PRC-017-0, a combined successor standard (PRC-005-2(i) – PRC-005-6), or a combination thereof.

Effective Date and Phased-In Compliance Dates

The effective dates for the proposed Reliability Standard are provided below. Where the standard drafting team identified the need for a longer implementation period for compliance with a particular section of a proposed Reliability Standard, the additional time for compliance with that section is specified below. The phased-in compliance date for those particular sections represents the date that entities must begin to comply with that particular section of the Reliability Standard, even where the Reliability Standard goes into effect at an earlier date.

Reliability Standard PRC-005-7

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 twelve (12) months after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for 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 twelve (12) months after the date the standard is adopted by the NERC Board of Trustees or as otherwise provided for that jurisdiction.

Compliance Dates for Requirements R3 and R4

Components First Introduced in PRC-005-2/PRC-005-2(i)¹

All Components with requirements first effective in Reliability Standard PRC-005-2(i) will continue to follow the PRC-005-2(i) implementation plan, which is incorporated by reference.

¹ The prior implementation plans are available in the One Stop Shop on the NERC Reliability Standards web page.
<https://www.nerc.com/pa/Stand/AlignRep/One%20Stop%20Shop.xlsx>

Components/Facilities First Introduced in PRC-005-2(ii)-PRC-005-6

All Components or Facilities with requirements in subsequent versions of the PRC-005 standard (PRC-005-2(ii) – PRC-005-6), including Sudden Pressure Relaying, Automatic Reclosing Components, and dispersed generation resources, will continue to follow the PRC-005-6 implementation plan, which is incorporated by reference.

Newly Applicable Components in PRC-005-7:

1. For new Components not addressed in PRC-005-6, including dc supply technologies and Components of control systems which respond to measured electrical quantities and provide protective functions, maintenance activities with maximum allowable intervals of six (6) calendar years, as established in Tables 4-1, 4-2(a), 4-2(b), 4-3, and 5:
 - a. The entity shall be at least 30% compliant within thirty-six (36) months following the effective date of Reliability Standard PRC-005-7.
 - b. The entity shall be at least 60% compliant within sixty (60) months following the effective date of Reliability Standard PRC-005-7.
 - c. The entity shall be 100% compliant within eighty-four (84) months following the effective date of Reliability Standard PRC-005-7.
2. For new Components not addressed in PRC-005-6, including dc supply technologies and Components of control systems which respond to measured electrical quantities and provide protective functions, maintenance activities with maximum allowable intervals of twelve (12) calendar years, as established in Table 4-1, 4.2(a), 4.2(b), 4-3, and 5:
 - a. The entity shall be at least 30% compliant within sixty (60) months following the effective date of Reliability Standard PRC-005-7.
 - b. The entity shall be at least 60% compliant within one hundred and eight (108) months following the effective date of Reliability Standard PRC-005-7.
 - c. The entity shall be 100% compliant within one hundred fifty-six (156) months following the effective date of Reliability Standard PRC-005-7.
3. For new Components not addressed in PRC-005-6, including dc supply technologies, maintenance activities with maximum allowable intervals of less than one (1) calendar year, as established in tables 1-1 through 1-5:
 - a. The entity shall be 100% compliant with eighteen (18) months following the effective date of Reliability Standard PRC-005-7.

Definition:

Where approval by an applicable governmental authority is required, the revised definition of Protection System shall become effective on the first day of the first calendar quarter that is twelve (12) months after the effective date of the applicable governmental authority's order approving Reliability Standard PRC-005-7, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the definition shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date Reliability Standard PRC-005-7 is adopted by the NERC Board of Trustees or as otherwise provided for that jurisdiction.

Retirement Dates

Reliability Standards PRC-005-1.1b, PRC-008-0, PRC-011-0, and PRC-017-0

Reliability Standards PRC-005-1.1b, PRC-008-0, PRC-011-0, and PRC-017-0 shall remain enforceable throughout the phased-in implementation period set forth in the PRC-005-2(i) implementation plan, incorporated herein by reference, and shall be applicable to a registered entity's Protection System Component maintenance activities not yet transitioned to a successor standard. Reliability Standards PRC-005-1.1b, PRC-008-0, PRC-011-0, and PRC-017-0 shall be retired at midnight of March 31, 2027 or as otherwise made effective pursuant to the laws applicable to such Electric Reliability Organization (ERO) governmental authorities; or, in those jurisdictions where no regulatory approval is required, at midnight of March 31, 2027.

Reliability Standard PRC-005-6

Reliability Standard PRC-005-6 shall be retired immediately prior to the effective date of PRC-005-7 in the particular jurisdiction in which the revised standard is becoming effective.