Compliance Application Notice — 0043
PRC-005 Protection System Maintenance and Testing Evidence

Posted [DATE]

Primary Interest Groups
Compliance Enforcement Authority (CEA)¹
NERC
Regional Entity (RE)
Transmission Owner (TO)
Generator Owner (GO)
Distribution Provider (DP) that owns a transmission Protection System

Issue: What types of evidence are CEAs to verify in regard to Protection System maintenance and testing?
This CAN clarifies how a CEA is to assess the adequacy of evidence provided to support an entity’s basis for its Protection Systems’ maintenance and testing interval or to support an entity’s program:
- Commissioning tests;³
- Historical evidence;
- The basis of time allowances for maintenance and testing intervals;
- Providing evidence of continuous monitoring devices; and
- The degree of specificity needed for electronic evidence files.

Compliance Application
PRC-005-1 provides, in pertinent part:

R1. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall have a Protection System maintenance and testing program for Protection Systems that affect the reliability of the BES. The program shall include:

   R1.1. Maintenance and testing intervals and their basis.
   R1.2. Summary of maintenance and testing procedures.

R2. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System

¹ Compliance Enforcement Authorities include ERO auditors, investigators, enforcement personnel or any person authorized to assess issues of concern, potential non-compliance, and possible, alleged or confirmed violations of NERC Reliability Standard requirements.
² The registered entity’s Protection System maintenance and testing program is only applicable for Protection System devices in service; however the date the equipment was placed in-service is not the date that should be used for the starting point of the maintenance and testing interval, unless the equipment was placed into service on the same date the commissioning tests were completed. See NERC CAN-0008 and CAN-0011, also referring to PRC-005-1.
³ Commissioning tests may also be referred to as pre-operational testing.
Maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include:

**R2.1.** Evidence Protection System devices were maintained and tested within the defined intervals.

**R2.2.** Date each Protection System device was last tested/maintained.

**Commissioning Tests**
CEAs are to use commissioning test records to verify compliance with PRC-005 R2. These records establish an origin for testing and maintenance intervals (R2.1), as well as the date each Protection System device was last tested and maintained (R2.2).

**Historical Evidence as Basis for Testing and Maintenance Intervals**
When an entity states that historical evidence was the basis for the intervals of its Protection System maintenance and testing program, the CEA is to verify that the registered entity has clear documentation of its prior experience with the equipment for determining the interval. The justification for the historical evidence should include the length of time reviewed in its prior experience and the data used to support the basis of the interval. The rationale that the registered entity may use for historical evidence includes, but is not limited to, operational experience with the equipment and failure rates.

**Basis of Time Allowances for Intervals**
CEAs are to verify the basis for determining maintenance and testing intervals, including any flexibility or time allowance used to extend intervals for unexpected events. Unexpected events may include scheduling conflicts, system reliability issues, extreme weather events, or other unforeseen occurrences. However, the time allowance extends the registered entity’s interval, and the CEA is to verify that the entity’s basis for its interval includes a time allowance. An acceptable example of a basis covering an extended time allowance may be the failure rate of the device.

**Evidence of Continuous Monitoring**
When an entity has devices that are continuously monitored, CEAs are to verify evidence that shows the device and associated communications system are operational. Continuously monitored devices must provide notification, such as an alarm, when the monitored Protection System devices and associated communications are not functioning correctly.

CEAs are to obtain evidence that failure or malfunction of a continuously monitored Protection System device produces an alarm and that corrective action will be taken by appropriate parties upon the alarm sounding or being issued. Examples of evidence of alarming include items include, but are not limited to: screen shots of the Supervisory Control and Data Acquisition (SCADA) system depicting Protection System device status, evidence of associated communications, and documentation of corrective action procedures to be taken when an alarm is received.

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4 Examples of devices that may be continuously monitored include, but are not limited to, Current Transformers (CT), Potential Transformers (PT), self-reporting relays and power line carrier systems.
**Electronic Evidence Files**
When registered entities use electronic files for recording testing and maintenance dates, CEAs are to verify evidence that the Protection System devices were tested and maintained within the defined intervals, as well as evidence that the actual tests were performed. CEAs are to verify that electronic evidence files show that some maintenance or testing activity took place and should look for relay test results or field records with annotations such as “as-found” readings or pass/fail results; if failed, then adjustments made. The maintenance record for adjustments may be requested.

**Effective Period for CAN**
This CAN is effective upon posting as final on the NERC Web site, and is to be used by CEAs to assess compliance from the posting date forward, regardless of the start date of any non-compliance or Possible Violation. It supersedes all prior communications and will remain in effect until such time that a future version of a FERC or other applicable government authority approved standard or interpretation becomes effective and addresses the specific issue contained in this CAN.

For any enforcement action in process and for audits that have been initiated, a CEA will apply the appropriate discretion, including consideration of the specific facts and circumstances of the non-compliance, in determining whether to assess compliance pursuant to this CAN.

**Evidence of Compliance**
CEAs are to verify evidence of Protection System maintenance and testing programs based on the guidelines listed above.

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This document is designed to convey compliance monitoring instruction to achieve a measure of consistency among auditors and Compliance Enforcement Authorities. It is not intended to establish new requirements under NERC’s Reliability Standards or to modify the requirements in any existing NERC Reliability Standard. Compliance will continue to be assessed based on language in the currently enforceable NERC Reliability Standards. This document is not intended to define the exclusive method an entity must use to comply with a particular standard or requirement, or foreclose a registered entity’s demonstration by alternative means that it has complied with the language and intent of the standard or requirement, taking into account the facts and circumstances of a particular registered entity. Implementation of information in this document is not a substitute for compliance with requirements in NERC’s Reliability Standards.

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5 “Initiated” means that a registered entity has received notification of the upcoming audit.