

## Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

### Description of Current Draft

The System Protection Coordination (Phase 2) Standard Drafting Team (SPCP2SDT) is addressing Requirements R1, R2, R5, and R6 of PRC-001-1.1(ii). The PER-006-1 Reliability Standard addresses the Generator Operator (GOP) that is applicable to Requirement R1 of PRC-001-1.1(ii).

Requirements R1, R2, and R5 applicable to the GOP are proposed for retirement as described below.

1. The PER-006-1, Requirement R1, applicable to the GOP, is proposing to replace PRC-001-1.1(ii), Requirement R1 to address the reliability objective of being “familiar with the purpose and limitations of Protection Systems” for the GOP’s plant operator personnel. The standard PER-005-2 already addresses centrally located dispatch center personnel.
2. The Personnel Performance, Training, and Qualifications (PER) set of Reliability Standards and Transmission Operations and Interconnection Reliability Operations and Coordination (TOP/IRO) sets of Reliability Standards address the reliability objective of PRC-001-1.1(ii), Requirements R2 and R5.

Requirements R1 and R6 applicable to the Balancing Authority (BA) and Requirements R1, R2, R5, and R6 applicable to the Transmission Operator (TOP) are proposed for retirement on the following basis.

1. The TOP/IRO sets of Reliability Standards address the reliability objective of these requirements.
2. The revisions to the definitions of “Operational Planning Analysis” (OPA) and “Real-time Assessment” (RTA), that the TOP and the Reliability Coordinator perform, address the reliability objective of integrating the function and limits of Protection Systems and Remedial Action Schemes (RAS) into their OPA and RTA.

See the Project 2007-06.2 mapping document for explanation on how the PER and TOP/IRO sets Reliability Standards and the revision of the two definitions address the reliability objectives of PRC-001-1.1(ii), Requirements R1, R2, R5, and R6 for the BA and TOP. The PRC-027-1 (*Coordination of Protection System Performance During Faults*) Reliability Standard addresses Requirements R3 and R4 of PRC-001-1.1(ii).

The PER-006-1 Reliability Standard and revisions to the definitions of OPA and RTA are being posted for an initial 45-day formal comment period with a concurrent initial ballot to be held in the last ten days of the comment period.

Completed Actions	Date
Standard Authorization Request (SAR) posted for comment	June 11 – July 10, 2007
SAR approved by Standards Committee (SC)	August 13, 2007
SC authorized posting of TOP-009-1	July 28, 2015
Draft 1, TOP-009-1, posted for a 45-day formal comment period	July 29 – September 11, 2015
Draft 1, TOP-009-1, concurrent/parallel initial ballot in the last ten days of the comment period	September 2-11, 2015
Draft 2, TOP-009-1, posted for a 45-day formal comment period	October 6 – November 19, 2015
Draft 2, TOP-009-1, concurrent/parallel additional ballot in the last ten days of the comment period	November 10-19, 2015
Draft 2, TOP-009-1 withdrawn from development at SDT meeting	February 9, 2016
SC authorized posting of PER-006-1	March 9, 2016

Anticipated Actions	Date
Draft 1, PER-006-1, 45-day formal comment period with initial ballot	March 2016
10-day final ballot	May 2016
NERC Board (Board) adoption	August 2016

### **New or Modified Term(s) Used in NERC Reliability Standards**

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

**Term(s):**

None.

When this standard receives Board adoption, the rationale boxes will be moved to the Supplemental Material section of the standard.

## A. Introduction

1. **Title:** Specific Training for Personnel
2. **Number:** PER-006-1
3. **Purpose:** To ensure that personnel are trained on specific topics essential to reliability to perform or support Real-time operations of the Bulk Electric System.
4. **Applicability:**
  - 4.1. **Functional Entities:**
    - 4.1.1. Generator Operator that has:
      - 4.1.1.1. Plant personnel who are responsible for the Real-time control of a generator and receive Operating Instruction(s) from the Generator Operator's Reliability Coordinator, Balancing Authority, Transmission Operator, or centrally located dispatch center.
5. **Effective Date:** See Implementation Plan for Project 2007-06.2.

## B. Requirements and Measures

**Rationale for Requirement R1:** Protection Systems and Remedial Action Schemes (RAS) are an integral part of reliable Bulk Electric System (BES) operation. This requirement addresses the reliability objective of ensuring that the Generator Operator (GOP) plant operating personnel understand the operational functionality of Protection Systems and RAS and their effects on generating Facilities.

- R1.** Each Generator Operator shall provide training to personnel identified in Applicability section 4.1.1.1. on the operational functionality of Protection Systems and Remedial Action Schemes (RAS) that affect the output of the generating Facility(ies) it operates. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
- M1.** Each Generator Operator shall have available for inspection, evidence that the applicable personnel completed training. This evidence may be documents such as training records showing successful completion of training that includes training materials, the name of the person, and date of training.

## C. Compliance

### 1. Compliance Monitoring Process

#### 1.1. Compliance Enforcement Authority:

“Compliance Enforcement Authority” means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

#### 1.2. Evidence Retention:

The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

- The Generator Operator shall keep data or evidence of Requirement R1 for the current year and three previous calendar years.

#### 1.3. Compliance Monitoring and Enforcement Program

As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

## Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	<p>The Generator Operator failed to provide training as described in Requirement R1 to the greater of:</p> <ul style="list-style-type: none"> <li>• one applicable personnel at a single Facility, or</li> <li>• 5% or less of the total applicable personnel of the Generator Operator.</li> </ul>	<p>The Generator Operator failed to provide training as described in Requirement R1 to the greater of:</p> <ul style="list-style-type: none"> <li>• two applicable personnel at a single Facility, or</li> <li>• more than 5% and less than or equal to 10% of the total applicable personnel of the Generator Operator.</li> </ul>	<p>The Generator Operator failed to provide training as described in Requirement R1 to the greater of:</p> <ul style="list-style-type: none"> <li>• three applicable personnel at a single Facility, or</li> <li>• more than 10% and less than or equal to 15% of the total applicable personnel of the Generator Operator.</li> </ul>	<p>The Generator Operator failed to provide training as described in Requirement R1 to the greater of:</p> <ul style="list-style-type: none"> <li>• five or more applicable personnel at a single Facility, or</li> <li>• more than 15% of the total applicable personnel of the Generator Operator.</li> </ul> <p><b>OR</b></p> <p>The Generator Operator failed to provide training as described in Requirement R1 to its applicable personnel.</p>

## D. Regional Variances

None.

## E. Associated Documents

Project 2007-06.2 Implementation Plan<sup>1</sup>

---

<sup>1</sup>[http://www.nerc.com/pa/Stand/Project200706\\_2SystemProtectionCoordinationDL/Project\\_2007\\_06\\_2\\_Imp\\_Plan\\_Draft\\_1\\_2016\\_03\\_10\\_Clean.pdf](http://www.nerc.com/pa/Stand/Project200706_2SystemProtectionCoordinationDL/Project_2007_06_2_Imp_Plan_Draft_1_2016_03_10_Clean.pdf)

## Version History

Version	Date	Action	Change Tracking
1		Adopted by the NERC Board of Trustees	New standard developed under Project 2007-06.2

## Guidelines and Technical Basis

### Requirement R1

The Generator Operator (GOP) monitors and controls its generating Facilities in Real-time to maintain reliability. To accomplish this, plant personnel responsible for Real-time control and operation of a generating Facility must understand how Protection Systems and Remedial Action Schemes (RAS) are applied and the affects they may have on a generating Facility. This standard requires GOPs to train their plant personnel on these issues. The standard only applies to plant operating personnel associated with the specific Facility to which they have Real-time control. This does not include other plant personnel not responsible for Real-time control (e.g., fuel or coal handlers, electricians, machinists, or maintenance staff).

A periodicity for training is not specified in Requirement R1 because it is incumbent upon the GOP to ensure its plant personnel that have Real-time control and operation of a generator are trained in order to operate the plant. The structure of the requirement dictates that the GOP personnel receive training before the Protection Systems or RAS is placed into service. On an ongoing basis, the GOP has the flexibility to determine when its plant personnel need to receive additional training (e.g., concerning new systems, replacements, technology and operational functionality changes, etc.) on the operational functionality of Protection Systems and RAS.

The phrase “operational functionality” focuses the training on how Protection Systems operate and prevent possible damage to Elements. It also addresses how RAS detects pre-determined BES conditions and automatically takes corrective actions.

Considerations for operational functionality may include, but is not limited to the following:

- Purpose of protective relays and RAS
- Zones of protection
- Protection communication systems (e.g., line current differential, direct transfer trip, etc.)
- Voltage and current inputs
- Station dc supply associated with protective functions
- Resulting actions – tripping/closing of breakers; tripping of a generator step-up (GSU) transformer; or generator ramping/tripping control functions

Requirement R1 focuses on the operational functionality of Protection Systems and Remedial Action Schemes specific to the generating plant and not the Bulk Electric System.

This requirement focuses on those systems that are related to the electrical output of the generator. Protective systems which trip breakers serving station auxiliary loads (e.g., such as pumps, fans, or fuel handling equipment) are not included in this training. Furthermore, protection of secondary unit substation (SUS) or low switchgear transformers and relays protecting other downstream plant electrical distribution system components are not in the

scope of this training, even if a trip of these devices might eventually result in a trip of the generating unit.