

**Normes de fiabilité PER pertinentes à la phase 1
(version anglaise)**

A. Introduction

1. **Title:** Operating Personnel Credentials
2. **Number:** PER-003-2
3. **Purpose:** To ensure that System Operators performing the reliability-related tasks of the Reliability Coordinator, Balancing Authority and Transmission Operator are certified through the NERC System Operator Certification Program when filling a Real-time operating position responsible for control of the Bulk Electric System.
4. **Applicability:**
 - 4.1. **Functional Entities:**
 - 4.1.1. Reliability Coordinator
 - 4.1.2. Transmission Operator
 - 4.1.3. Balancing Authority
5. **Effective Date:** See Implementation Plan for standard PER-003-2.

B. Requirements and Measures

- R1. Each Reliability Coordinator shall staff its Real-time operating positions performing Reliability Coordinator reliability-related tasks with System Operators who have demonstrated minimum competency in the areas listed by obtaining and maintaining a valid NERC Reliability Operator certificate ⁽¹⁾⁽²⁾: [*Risk Factor: High*][*Time Horizon: Real-time Operations*]
 - 1.1. Areas of Competency
 - 1.1.1. Resource and demand balancing
 - 1.1.2. Transmission operations
 - 1.1.3. Emergency preparedness and operations
 - 1.1.4. System operations
 - 1.1.5. Protection and control
 - 1.1.6. Voltage and reactive
 - 1.1.7. Interchange scheduling and coordination
 - 1.1.8. Interconnection reliability operations and coordination

¹ Non-NERC certified personnel performing any reliability-related task of a real-time operating position must be under the direct supervision of a NERC Certified System Operator stationed at that operating position; the NERC Certified System Operator at that operating position has ultimate responsibility for the performance of the reliability-related tasks.

² The NERC certificates referenced in this standard pertain to those certificates identified in the NERC System Operator Certification Program Manual.

- M1.** Each Reliability Coordinator shall have the following evidence to show that it staffed its Real-time operating positions performing reliability-related tasks with System Operators who have demonstrated the applicable minimum competency by obtaining and maintaining the appropriate, valid NERC certificate:
- M1.1** A list of Real-time operating positions.
 - M1.2** A list of System Operators assigned to its Real-time operating positions.
 - M1.3** A copy of each of its System Operator’s NERC certificate or NERC certificate number with expiration date which demonstrates compliance with the applicable Areas of Competency.
 - M1.4** Work schedules, work logs, or other equivalent evidence showing which System Operators were assigned to work in Real-time operating positions.
- R2.** Each Transmission Operator shall staff its Real-time operating positions performing Transmission Operator reliability-related tasks with System Operators who have demonstrated minimum competency in the areas listed by obtaining and maintaining one of the following valid NERC certificates ⁽¹⁾⁽²⁾: [*Risk Factor: High*][*Time Horizon: Real-time Operations*]:
- 2.1. Areas of Competency**
 - 2.1.1.** Transmission operations
 - 2.1.2.** Emergency preparedness and operations
 - 2.1.3.** System operations
 - 2.1.4.** Protection and control
 - 2.1.5.** Voltage and reactive
 - 2.2. Certificates**
 - Reliability Operator
 - Balancing, Interchange and Transmission Operator
 - Transmission Operator
- M2.** Each Transmission Operator shall have the following evidence to show that it staffed its Real-time operating positions performing reliability-related tasks with System Operators who have demonstrated the applicable minimum competency by obtaining and maintaining the appropriate, valid NERC certificate:

¹ Non-NERC certified personnel performing any reliability-related task of a real-time operating position must be under the direct supervision of a NERC Certified System Operator stationed at that operating position; the NERC Certified System Operator at that operating position has ultimate responsibility for the performance of the reliability-related tasks.

² The NERC certificates referenced in this standard pertain to those certificates identified in the NERC System Operator Certification Program Manual.

- M2.1** A list of Real-time operating positions.
 - M2.2** A list of System Operators assigned to its Real-time operating positions.
 - M2.3** A copy of each of its System Operator’s NERC certificate or NERC certificate number with expiration date which demonstrates compliance with the applicable Areas of Competency.
 - M2.4** Work schedules, work logs, or other equivalent evidence showing which System Operators were assigned to work in Real-time operating positions.
- R3.** Each Balancing Authority shall staff its Real-time operating positions performing Balancing Authority reliability-related tasks with System Operators who have demonstrated minimum competency in the areas listed by obtaining and maintaining one of the following valid NERC certificates ⁽¹⁾⁽²⁾: [*Risk Factor: High*][*Time Horizon: Real-time Operations*]:
- 3.1.** Areas of Competency
 - 3.1.1.** Resources and demand balancing
 - 3.1.2.** Emergency preparedness and operations
 - 3.1.3.** System operations
 - 3.1.4.** Interchange scheduling and coordination
 - 3.2.** Certificates
 - Reliability Operator
 - Balancing, Interchange and Transmission Operator
 - Balancing and Interchange Operator
- M3.** Each Balancing Authority shall have the following evidence to show that it staffed its Real-time operating positions performing reliability-related tasks with System Operators who have demonstrated the applicable minimum competency by obtaining and maintaining the appropriate, valid NERC certificate:
- M3.1** A list of Real-time operating positions.
 - M3.2** A list of System Operators assigned to its Real-time operating positions.
 - M3.3** A copy of each of its System Operator’s NERC certificate or NERC certificate number with expiration date which demonstrates compliance with the applicable Areas of Competency.

¹ Non-NERC certified personnel performing any reliability-related task of a real-time operating position must be under the direct supervision of a NERC Certified System Operator stationed at that operating position; the NERC Certified System Operator at that operating position has ultimate responsibility for the performance of the reliability-related tasks.

² The NERC certificates referenced in this standard pertain to those certificates identified in the NERC System Operator Certification Program Manual.

- M3.4** Work schedules, work logs, or other equivalent evidence showing which System Operators were assigned to work in Real-time operating positions.

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.

- Each Reliability Coordinator, Transmission Operator and Balancing Authority shall keep data or evidence for three years or since its last compliance audit, whichever time frame is the greatest.

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.	N/A	N/A	N/A	The Reliability Coordinator failed to staff each Real-time operating position performing Reliability Coordinator reliability-related tasks with a System Operator having a valid NERC certificate as defined in Requirement R1.
R2.	N/A	N/A	N/A	The Transmission Operator failed to staff each Real-time operating position performing Transmission Operator reliability-related tasks with a System Operator having a valid NERC certificate as defined in Requirement R2, Part 2.2.
R3.	N/A	N/A	N/A	The Balancing Authority failed to staff each Real-time operating position performing Balancing Authority reliability-related tasks with a System Operator having a valid NERC certificate as defined in Requirement R3, Part 3.2.

D. Regional Variances

None.

E. Associated Documents

[Implementation Plan](#)

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
1	February 17, 2011	Complete revision under Project 2007-04	Revision
1	February 17, 2011	Adopted by Board of Trustees	
1	September 15, 2011	FERC Order issued by FERC approving PER-003-1 (effective date of the Order is September 15, 2011)	
2	May 10, 2018	Added footnote to requirements	Revision
2	May 10, 2018	Adopted by Board of Trustees	Revision
2	November 21, 2018	FERC Letter Order approving PER-003-2. Docket No. RD18-9-000	

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

- 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"> • one applicable personnel at a single Facility, or • 5% or less of the total applicable personnel of the Generator Operator. 	<p>The Generator Operator failed to provide training as described in Requirement R1 to the greater of:</p> <ul style="list-style-type: none"> • two applicable personnel at a single Facility, or • more than 5% and less than or equal to 10% of the total applicable personnel of the Generator Operator. 	<p>The Generator Operator failed to provide training as described in Requirement R1 to the greater of:</p> <ul style="list-style-type: none"> • three applicable personnel at a single Facility, or • more than 10% and less than or equal to 15% of the total applicable personnel of the Generator Operator. 	<p>The Generator Operator failed to provide training as described in Requirement R1 to the greater of:</p> <ul style="list-style-type: none"> • five or more applicable personnel at a single Facility, or • more than 15% of the total applicable personnel of the Generator Operator. <p>OR</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 Plan¹

¹ 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	August 11, 2016	Adopted by the NERC Board of Trustees	New standard developed under Project 2007-06.2
1	June 7, 2018	FERC Order issued approving PER-006-1. Docket No. RM16-22-000.	
1	August 13, 2018	FERC Approved	
1	October 1, 2020	Effective Date	Effective dates delayed to April 1, 2021 due to COVID-19 per FERC Order
1	April 1, 2021	Effective Date	

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, applicable plant personnel responsible for Real-time control of a generating Facility must be trained on how the operational functionality of Protection Systems and Remedial Action Schemes (RAS) are applied and the affects they may have on a generating Facility. Although, training does not have to be Facility-specific, the standard applies to plant operating personnel associated with the specific Facility to which they have Real-time control. This does not include 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 the GOP must ensure its plant personnel who have Real-time control of a generator are trained. The Generator Operator must also ensure it provides applicable training that results from changes to the operational functionality of the Protection Systems and Remedial Action Schemes that affect the output of the generation Facility(ies).

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 are 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 the scope of this training. Furthermore, protection of secondary unit substation (SUS) or low voltage 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.

Rationale

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 Generator Operator (GOP) plant operating personnel understand the operational functionality of Protection Systems and RAS and their effects on generating Facilities.