
Project QC-2020-03

PER-006-1 – Specific Training for Personnel PRC-027-1 – Coordination of Protection Systems for Performance During Faults

1. OVERVIEW OF THE STANDARDS

1.1. Applicability

The PER-006-1 and PRC-027-1 standards apply to the following functions and facilities:

Standard	Functions covered
PER-006-1	Generator Operator (GOP) that has 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
PRC-027-1	Transmission Owner (TO) Generator Owner (GO) Certain Distribution Providers (DP)

The facilities covered by the PRC-027-1 standard are Protection Systems installed to detect and isolate Faults on Main Transmission System (RTP) Elements.

1.2. Purpose of the Reliability Standard

The purpose of the new PER-006-1 standard is to ensure that personnel are trained in the functionality of protection systems and remedial actions schemes. This standard requires Generator Operators to use a systematic approach to develop and implement training for dispatch personnel at centrally-located dispatch centers as well as plant personnel who are responsible for real-time control of a generator.

The purpose of the new PRC-027-1 standard is to provide a clear set of requirements that obligate entities to (1) implement a process for establishing and coordinating new or revised Protection Systems, and (2) periodically study Protection System settings that could be affected by incremental changes in Fault current to ensure the Protection Systems continue to operate in their intended sequence.

1.3. Regulatory Context

This is the first regulatory filing to the Régie de l'énergie (hereinafter "the Régie") to approve the PER-006-1 and PRC-027-1 standards, their associated violation risk factors and violation severity levels. Both

standards as well as the retirement of PRC-001-1(ii) standard were adopted by the NERC Board of Trustees on August 11, 2016 and approved by FERC in Order 847 on June 7, 2018¹.

The North American Electric Reliability Corporation (NERC) submitted a Notice of Filing of the North American Electric Reliability Corporation of Proposed Reliability Standards PRC-027-1 and PER-006-1 and retirement of PRC-001-1(ii)² to the Régie on September 12, 2016.

1.4. Specific Provisions for Québec

In the application of the PER-006-1 standard, all references to the terms “Bulk Electric System” or “BES” shall be replaced by the terms “Main Transmission System” or “RTP” respectively.

The PRC-027-1 standard applies to Protection Systems installed to detect and isolate Faults on RTP elements.

1.5. Proposed Effective Dates

The PER-006-1 and PRC-027-1 standards come into effect in the United States on October 1, 2020. The NERC implementation plan³ allowed for a period of 12 months between regulatory approval and the implementation of the standard. In Québec, the Reliability Coordinator proposes an effective date which is 12 months beyond the adoption of the PER-006-1 and PRC-027-1 standards by the Régie. The standards PER-006-1 and PRC-027-1 must be approved together.

On April 6th 2020, due to the significant uncertainties regarding the duration of the coronavirus (COVID-19) outbreak and the subsequent recovery, NERC filed a motion to defer the PER-006-1 and PRC-027-1 standards implementation dates in the second half of 2020 by six months, therefore delaying the effective date to April 1st, 2021. The Reliability Coordinator suggests that the same delays should apply to the entities in Québec and proposes an additional six months delay between the regulatory approval and the implementation of the standards.

1.6. Standards or Requirements to Retire

FERC Order 847, paragraph 10, approved the retirement of PRC-001-1(ii) with a retirement date of October 1, 2020 because the six requirements contained in the standard were either addressed by reliability standards already approved by the Commission or upon the approval of both PER-006-1 and PRC-027-1 standards. Due to the significant uncertainties regarding the duration of the coronavirus (COVID-19) outbreak and the subsequent recovery, the retirement date was extended to April 1, 2021.

The PRC-001-1(ii) standard, currently under review by the Régie in docket R-4070-2018, if not yet adopted, should be removed from the docket upon approval of the PER-006-1 and PRC-027-1 standards. The mapping of the six retired requirements are detailed in the Project 2007-06.2 Phase 2 of System

¹ FERC Order 847, consulted online on July 9, 2020 at :

<https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20No.%20847%20Approving%20PRC-027-1%20and%20PER-006-1.pdf>

² NERC Notice of Filing of the North American Electric Reliability Corporation of Proposed Reliability Standards PRC-027-1 and PER-006-1 and retirement of PRC-001-1(ii), consulted online July 9, 2020,

<https://www.nerc.com/FilingsOrders/ca/Canadian%20Filings%20and%20Orders%20DL/Sask%20PRC-027%20and%20PER-006%20Filing.pdf>

³ NERC Implementation Plan, consulted online on July 9, 2020, at:

https://www.nerc.com/pa/Stand/Project200706_2SystemProtectionCoordinationDL/Project_2007_06_2_Imp_Plan_Draft_1_2016_03_10_Clean.pdf

Protection Coordination Mapping Document⁴ and are summarized in the table below. The table below also indicates the relevant Régie decisions:

PRC-001-1(ii)	Mapping to other standard	Régie Decision
R1	PER-003-1 PER-005-2 PER-006-1 and revised definitions of operational planning analysis and real-time assessment will replace the remaining portions of PRC-001-1(ii) R1.	D-2015-198 ⁵ D-2016-195 ⁶
R2	IRO-001-4 IRO-008-2 IRO-010-2 TOP-001-3 TOP-003-3	D-2017-061 ⁷
R3	PRC-027-1	In the present filing
R4	PRC-027-1	In the present filing
R5	TOP-002-4 TOP-003-3 IRO-002-4 IRO-008-2 IRO-017-1 TPL-001-4	D-2017-061 D-2017-110 ⁸
R6	TOP-001-3 TOP-003-3	D-2017-061

1.7. Modifications to the Glossary

The following modified terms are not found within the PER-006-1 standard, but are an integral part of the basis for the retirement of PRC-001-1.1(ii), Requirement R1:

- Operating Planning Analysis
- Real-time Assessment

The following term found in PRC-027-1 R2 will be added to the Glossary:

- Protection System Coordination Study

⁴ Project 2007-06.2 Phase 2 of System Protection Coordination Mapping Document consulted online on July 9, 2020 at https://www.nerc.com/pa/Stand/Project200706_2SystemProtectionCoordinationDL/Project_2007_06_2_Map_Final_Draft_2016_05_17_Clean.pdf

⁵ D-2015-198 consulted online on July 9, 2020 at: http://publicsde.regie-energie.qc.ca/projets/283/DocPri/R-3906-2014-A-0006-Dec-Dec-2015_12_09.pdf

⁶ D-2016-195 consulted online on July 9 2020 at: http://publicsde.regie-energie.qc.ca/projets/332/DocPri/R-3944-2015-A-0062-Dec-Dec-2016_12_22.pdf

⁷ D-2017-061 consulted online on July 9, 2020 at: http://publicsde.regie-energie.qc.ca/projets/404/DocPri/R-4001-2017-A-0005-Dec-Dec-2017_06_16.pdf

⁸ Decision D-2017-110 consulted online on July 9, 2020 at: http://publicsde.regie-energie.qc.ca/projets/332/DocPri/R-3944-2015-A-0083-Dec-Dec-2017_09_27.pdf

The definitions of these terms, in French and in English, are provided in the document “Modifications au Glossaire”. Furthermore, the coming into effect of the standards is contingent upon the changes to the definition of the term Protection System as requested in document B-0028 in docket R-4117-2020⁹.

2. ASSESSMENT OF RELEVANCE

NERC Project “2007-06 Phase 1 – System Protection Coordination”¹⁰, in conjunction with Project “2007-06 Phase 2”¹¹, proposed the retirement of PRC-001-1(ii) as the reliability objectives of the six requirements contained in this standard are addressed by the PER-006-1, PRC-027-1 and existing TOP/IRO FERC approved standards.

The intent of the PRC-027-1 standard is to maintain the coordination of protection systems installed to detect and isolate faults on BES elements, such that those protection systems operate in the intended sequence during faults.

As for the PER-006-1 standard, its intent is to ensure that the personnel are trained on specific topics essential to reliability to perform or support real-time operations of the BES.

These standards are as relevant in Québec as to the rest of North America. In accordance with the agreement made in 2009 between the Régie, NERC and the NPCC and with the authorization of the Québec government,¹² these standards were developed and approved by external agencies for North America, including Québec. In the opinion of the Reliability Coordinator, these standards are relevant for system reliability in Québec and the standards contribute to harmonization with neighboring systems.

3. PRELIMINARY IMPACT ASSESSMENT

This section presents the Reliability Coordinator’s preliminary impact assessment.

PER-006-1	Low	Moderate	High
Implementation of the standard		X	
Enforcement of the standard		X	
Compliance monitoring		X	

PRC-027-1	Low	Moderate	High
Implementation of the standard		X	
Enforcement of the standard		X	
Compliance monitoring		X	

⁹ Pièce B-0028, consulted online on July 9, 2020, http://publicsde.regie-energie.qc.ca/projets/536/DocPrj/R-4117-2020-B-0028-Demande-PieceRev-2020_06_12.pdf

¹⁰ NERC, Project 2007-06 Phase 1, consulted online on July 9, 2020, at <https://www.nerc.com/pa/Stand/Pages/Project-2007-06-System-Protection-Coordination.aspx>

¹¹ NERC Project 2007-06 Phase 2, consulted online on July 9, 2020, at <https://www.nerc.com/pa/Stand/Pages/Project-2007-06-2-System-Protection-Coordination.aspx>

¹² Agreement entered into in accordance with Order-in-Council 443-21009 dated April 8, 2019.

Legend:

- Low:** Normal industry practice that only requires minor adjustments to existing processes or practices.
- Moderate:** Change that requires allocation of some physical, human or financial resources to implement the proposed standard, maintain it or monitor its compliance.
- High:** Change that requires allocation of significant physical, human or financial resources to plan and implement the proposed standard, maintain it or monitor its compliance.

4. FINAL IMPACT ASSESSMENT

This section shall be completed upon receipt of the impact assessment forms and at the conclusion of the consultation process prior to filing of reliability standards with the Régie de l'énergie.