

operating within the designated area defined in appendix G of this subpart, sewage and non clean graywater as defined by section 312 of the FWPCA generated incidental to vessel use, and ammunition, pyrotechnics or other materials directly related to search and rescue and live ammunition training activities conducted by United States Coast Guard vessels and aircraft in the designated areas defined in appendix G of this subpart. Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality, except for the material or other matter excepted in paragraphs (a)(2)(i) through (vi) and (a)(3) of this section.

* * * * *

(4) Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality, except for the material or other matter excepted in paragraphs (a)(2)(i) through (vi) and (a)(3) of this section.

* * * * *

■ 3. Amend subpart H by adding appendix G to read as follows:

Appendix G to Subpart H of Part 922— Designated Area for Certain United States Coast Guard Discharges

Coordinates listed in this appendix are unprojected (Geographic Coordinate System) and based on the North American Datum of 1983 (NAD83).

The portion of the Greater Farallones National Marine Sanctuary area where the exception for discharges from United States Coast Guard activities applies is defined as follows. Beginning with Point 1 identified in the coordinate table in this appendix, the boundary extends from Point 1 to Point 2 in a straight line arc, and continues from Point 2 to Point 3 in a straight line arc, and from Point 3 to Point 4 in a straight line arc. From Point 4 the boundary extends east and north along a straight line arc towards Point 5 until it intersects the fixed offshore boundary between the United States and California (approximately 3 NM seaward of the coast as defined in *United States vs. California*, 135 S. Ct. 563 (2014)). The boundary then extends northward following the fixed offshore boundary between the United States and California until it intersects the line segment formed between Point 6 and Point 7. From this intersection, the boundary extends west along the northern boundary of Greater Farallones National Marine Sanctuary to Point 7 where it ends.

Point No.	Latitude	Longitude
1	39.00000	- 124.33350
2	38.29989	- 123.99988
3	38.29989	- 123.20005

Point No.	Latitude	Longitude
4	38.26390	- 123.18138
5 ¹	38.29896	- 123.05989
6 ¹	39.00000	- 123.75777
7	39.00000	- 124.33350

¹These coordinates are not a part of the boundary for the Designated Area for Certain United States Coast Guard Discharges. These coordinates are reference points used to draw line segments that intersect with the fixed offshore boundary between the United States and California.

Subpart K—Cordell Bank National Marine Sanctuary

■ 4. Amend § 922.112 by revising paragraphs (a)(2)(i)(D) and (E) and adding paragraph (a)(2)(i)(F) to read as follows:

§ 922.112 Prohibited or otherwise regulated activities.

(a) * * *

(2)(i) * * *

(D) For a vessel less than 300 GRT or a vessel 300 GRT or greater without sufficient holding capacity to hold graywater while within the Sanctuary, clean graywater as defined by section 312 of the FWPCA;

(E) Vessel engine or generator exhaust; or

(F) For a United States Coast Guard vessel that is without sufficient holding tank capacity and is without a Type I or II marine sanitation device, and that is operating within the designated area defined in appendix C of this subpart, sewage and non clean graywater as defined by section 312 of the FWPCA generated incidental to vessel use, and ammunition, pyrotechnics or other materials directly related to search and rescue and live ammunition training activities conducted by United States Coast Guard vessels and aircraft in the designated areas defined in appendix C of this subpart.

* * * * *

■ 5. Amend subpart K by adding appendix C to read as follows:

Appendix C to Subpart K of Part 922— Designated Area for Certain United States Coast Guard Discharges

Coordinates listed in this appendix are unprojected (Geographic Coordinate System) and based on the North American Datum of 1983 (NAD83).

The portion of the Cordell Bank National Marine Sanctuary area where the exception for discharges from United States Coast Guard activities applies is defined as follows. Beginning with Point 1, identified in the coordinate table in this appendix, the boundary extends from Point 1 to Point 2 in a straight line arc and continues in numerical order through each subsequent point to Point 38. From Point 38 the boundary extends west

along the northern boundary of Cordell Bank National Marine Sanctuary to Point 39 where it ends.

Point No.	Latitude	Longitude
1	38.29989	- 123.99988
2	37.76687	- 123.75143
3	37.76716	- 123.42758
4	37.77033	- 123.43466
5	37.78109	- 123.44694
6	37.78383	- 123.45466
7	37.79487	- 123.46721
8	37.80094	- 123.47313
9	37.81026	- 123.46897
10	37.81365	- 123.47906
11	37.82296	- 123.49280
12	37.84988	- 123.51749
13	37.86189	- 123.52197
14	37.87637	- 123.52192
15	37.88541	- 123.52967
16	37.90725	- 123.53937
17	37.92288	- 123.54360
18	37.93858	- 123.54701
19	37.94901	- 123.54777
20	37.95528	- 123.56199
21	37.96683	- 123.57859
22	37.97761	- 123.58746
23	37.98678	- 123.59988
24	37.99847	- 123.61331
25	38.01366	- 123.62494
26	38.01987	- 123.62450
27	38.02286	- 123.61531
28	38.02419	- 123.59864
29	38.03409	- 123.59904
30	38.04614	- 123.60611
31	38.05308	- 123.60549
32	38.06188	- 123.61546
33	38.07451	- 123.62162
34	38.08289	- 123.62065
35	38.11256	- 123.63344
36	38.13219	- 123.64265
37	38.26390	- 123.18138
38	38.29989	- 123.20005
39	38.29989	- 123.99988

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DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

18 CFR Part 40

[Docket No. RM16-22-000]

Coordination of Protection Systems for Performance During Faults and Specific Training for Personnel Reliability Standards

AGENCY: Federal Energy Regulatory Commission, DOE.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Federal Energy Regulatory Commission (Commission) proposes to approve Reliability Standards PRC-027-1 (Coordination of Protection Systems for Performance

During Faults) and PER-006-1 (Specific Training for Personnel) submitted by the North American Electric Reliability Corporation (NERC). The purpose of proposed Reliability Standard PRC-027-1 is to maintain the coordination of protection systems installed to detect and isolate faults on bulk electric system elements, such that those protection systems operate in the intended sequence during faults. The purpose of proposed Reliability Standard PER-006-1 is to ensure that personnel are trained on specific topics essential to reliability to perform or support real-time operations of the bulk electric system. In addition, the Commission proposes to direct NERC to develop certain modifications to proposed Reliability Standard PRC-027-1.

DATES: Comments are due January 22, 2018.

ADDRESSES: Comments, identified by docket number, may be filed in the following ways:

- Electronic Filing through <http://www.ferc.gov>. Documents created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format.
- Mail/Hand Delivery: Those unable to file electronically may mail or hand-deliver comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street NE., Washington, DC 20426.

Instructions: For detailed instructions on submitting comments and additional information on the rulemaking process, see the Comment Procedures Section of this document.

FOR FURTHER INFORMATION CONTACT:

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Alan Rukin (Legal Information), Office of the General Counsel, Federal Energy Regulatory Commission, 888 First Street NE., Washington, DC 20426, Telephone: (202) 502-8502, Alan.Rukin@ferc.gov.

SUPPLEMENTARY INFORMATION:

1. Pursuant to section 215 of the Federal Power Act (FPA), the Commission proposes to approve proposed Reliability Standards PRC-027-1 (Coordination of Protection Systems for Performance During Faults) and PER-006-1 (Specific Training for Personnel), which were submitted for approval by the North American Electric Reliability Corporation (NERC), the

Commission-certified Electric Reliability Organization (ERO).¹ As discussed below, however, the Commission also proposes to direct NERC to modify proposed Reliability Standard PRC-027-1 to require an initial protection system coordination study to ensure that applicable entities will perform (or have performed), as a baseline, a study demonstrating proper coordination of its protection systems. We propose to direct NERC to submit the modified Reliability Standard for Commission approval within 12 months following the effective date of a final rule in this proceeding.

2. The Commission also proposes to approve the associated violation risk factors, violation severity levels, implementation plans, and effective dates proposed by NERC for Reliability Standards PRC-027-1 and PER-006-1. The Commission further proposes to approve the retirement of currently-effective Reliability Standard PRC-001-1.1(ii) (System Protection Coordination).²

3. In addition, the Commission proposes to approve new and revised definitions submitted by NERC for incorporation in the NERC Glossary of Terms Used in NERC Reliability Standards (“NERC Glossary”) for the following terms: (1) “Protection system coordination study;” (2) “operational planning analysis;” and (3) “real-time assessment.”

I. Background

A. Section 215 and Mandatory Reliability Standards

4. Section 215 of the FPA requires a Commission-certified ERO to develop mandatory and enforceable Reliability Standards, subject to Commission review and approval.³ Once approved, the Reliability Standards may be enforced by the ERO subject to Commission oversight or by the Commission independently.⁴ In 2006, the Commission certified NERC as the ERO pursuant to section 215 of the FPA.⁵

B. Order No. 693

5. On March 16, 2007, the Commission issued Order No. 693,

approving 83 of the 107 Reliability Standards filed by NERC, including Reliability Standard PRC-001-1.⁶ In addition, the Commission directed NERC to develop modifications to Reliability Standard PRC-001-1 that:

(1) Correct the references for Requirements, and [sic] (2) include a requirement that upon the detection of failures in relays or protection system elements on the Bulk-Power System that threaten reliable operation, relevant transmission operators must be informed promptly, but within a specified period of time that is developed in the Reliability Standards development process, whereas generator operators must also promptly inform their transmission operators; and (3) clarifies that, after being informed of failures in relays or protection system elements that threaten reliability of the Bulk-Power System, transmission operators must carry out corrective control actions, *i.e.*, return a system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes after they receive notice of the failure.⁷

C. NERC Petition and Proposed Reliability Standards PRC-027-1 and PER-006-1

6. On September 2, 2016, NERC submitted a petition seeking Commission approval of proposed Reliability Standards PRC-027-1 and PER-006-1.⁸ NERC states that the proposed Reliability Standards, new and revised NERC Glossary terms, and the retirement of Reliability Standard PRC-001-1.1(ii) satisfy the Commission’s criteria in Order No. 672 and are just, reasonable, not unduly discriminatory or preferential, and in the public interest.⁹ NERC explains that the intent of the proposed Reliability Standards and changes to the NERC Glossary are to maintain the coordination of protection systems installed to detect and isolate faults on bulk electric system elements and require registered entities to provide training to their relevant personnel on protection systems and remedial action schemes. NERC asserts that the proposed Reliability Standards are an improvement over currently-effective Reliability Standard PRC-001-1.1(ii) and will ensure that appropriate personnel are trained on protection

⁶ *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, FERC Stats. & Regs. ¶ 31,242, at PP 1433-1449, *order on reh’g*, Order No. 693-A, 120 FERC ¶ 61,053 (2007).

⁷ Order No. 693, FERC Stats. & Regs. ¶ 31,242 at P 1449.

⁸ Proposed Reliability Standards PRC-027-1 and PER-006-1 are not attached to this Notice of Proposed Rulemaking. The proposed Reliability Standards are available on the Commission’s eLibrary document retrieval system in Docket No. RM16-22-000 and are posted on the NERC Web site, <http://www.nerc.com>.

⁹ NERC Petition at 10.

¹ 16 U.S.C. 824o.

² The Commission approved Reliability Standard PRC-001-1.1(ii) on May 29, 2015. *North American Electric Reliability Corporation*, 151 FERC ¶ 61,186 (2015).

³ *Id.* 824o(c), (d).

⁴ *Id.* 824o(e).

⁵ *North American Electric Reliability Corp.*, 116 FERC ¶ 61,062, *order on reh’g and compliance*, 117 FERC ¶ 61,126 (2006), *order on compliance*, 118 FERC ¶ 61,190, *order on reh’g*, 119 FERC ¶ 61,046 (2007), *aff’d sub nom. Alcoa Inc. v. FERC*, 564 F.3d 1342 (D.C. Cir. 2009).

systems and that protection systems are appropriately studied, coordinated, and monitored.

1. Proposed Reliability Standard PER-006-1

7. NERC states that proposed Reliability Standard PER-006-1 requires generator operators to use a systematic approach to develop and implement training for dispatch personnel at centrally-located dispatch centers.¹⁰ NERC explains that proposed Reliability Standard PER-006-1 will also cover plant personnel who are responsible for real-time control of a generator. NERC maintains that it is appropriate to train plant personnel [in] the functionality of protection systems and remedial action schemes. NERC observes that proposed Reliability Standard PER-006-1 replaces the phrase “purpose and limitations” used in currently-effective Reliability Standard PRC-001-1(ii) with the phrase “operational functionality” to clearly identify the objective of the training.¹¹ NERC also observes that proposed Reliability Standard PER-006-1 replaces the phrase “applied in its area” in Reliability Standard PRC-001-1.1(ii) with the phrase “that affect the output of the generating facility(ies) it operates” to properly tailor the scope of the required training. NERC notes that proposed Reliability Standard PER-006-1 does not specify a periodicity for the required training.

2. Proposed Reliability Standard PRC-027-1

8. NERC asserts that proposed Reliability Standard PRC-027-1:

provides a clear set of Requirements that obligate entities to (1) implement a process for establishing and coordinating new or revised Protection System settings, 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.¹²

According to NERC, proposed Reliability Standard PRC-027-1, Requirement R1 mandates that each transmission owner, generator owner, and distribution provider establish a process for developing new and revised protection system settings for bulk electric system elements.¹³

9. NERC states that proposed Reliability Standard PRC-027-1, Requirement R2 mandates that every six years, applicable entities must either: (1)

Perform a protection system coordination study to determine whether the protection systems continue to operate in the intended sequence during faults; (2) compare present fault current values to an established fault current baseline and, only if the comparison identifies a 15 percent or greater deviation in fault current values (either three phase or phase to ground) at a bus to which the bulk electric system is connected, perform a protection system coordination study; or (3) use a combination of options 1 and 2.¹⁴

10. NERC explains that proposed Reliability Standard PRC-027-1, Requirement R3 will require applicable entities to use the process established under proposed Reliability Standard PRC-027-1, Requirement R1 for the development of any new or revised protection system settings.

3. Proposed Retirement of Reliability Standard PRC-001-1.1(ii)

11. NERC states that Reliability Standard PRC-001-1.1(ii) includes six requirements that are either addressed by Reliability Standards approved by the Commission or by the proposed Reliability Standards. Specifically, NERC explains that Reliability Standard PRC-001-1.1(ii), Requirement R1 has been partially replaced by currently-effective Reliability Standards PER-003-1 and PER-005-2. NERC continues that proposed Reliability Standard PER-006-1 and the proposed revised definitions of operational planning analysis and real-time assessment will replace the remaining portions of Reliability Standard PRC-001-1.1(ii), Requirement R1. NERC asserts that Reliability Standard PRC-001-1.1(ii), Requirement R2 has been addressed by Reliability Standards IRO-001-4, IRO-008-2, IRO-010-2, TOP-001-3, and TOP-003-3, which the Commission approved in Order No. 817.¹⁵ NERC states that Reliability Standard PRC-001-1.1(ii), Requirements R3 and R4 will be replaced with proposed Reliability Standard PRC-027-1. NERC also explains that Reliability Standard PRC-001-1.1(ii), Requirement R5 has been replaced with several Reliability Standards developed after Reliability Standard PRC-001-1(ii) became effective.¹⁶ NERC further states that Reliability Standard PRC-001-1.1(ii), Requirement R6 has been replaced with

¹⁴ *Id.* at 26.

¹⁵ *Id.* at 5 (citing *Transmission Operations Reliability Standards and Interconnection Reliability Operations and Coordination Reliability Standards*, Order No. 817, 153 FERC ¶ 61,178 (2015)).

¹⁶ *Id.* at 6.

Reliability Standards TOP-001-3 and TOP-003-3.

II. Discussion

12. Pursuant to section 215(d)(2) of the FPA, we propose to approve proposed Reliability Standards PER-006-1 and PRC-027-1 as just, reasonable, not unduly discriminatory or preferential, and in the public interest, as both proposed Reliability Standards improve upon currently-effective Reliability Standard PRC-001-1.1(ii) in important ways.¹⁷ Specifically, proposed Reliability Standard PRC-027-1 does so by (1) modifying the applicability section to include the appropriate functional entity types with the responsibilities, resources, and skill sets to conduct the studies required to coordinate protection systems, and (2) listing the protection system functions on all bulk electric system elements that require coordination. Proposed Reliability Standard PER-006-1, along with existing formal training requirements in the PER group of Reliability Standards, also improves upon Reliability Standard PRC-001-1.1(ii), Requirement R1 by ensuring that the necessary personnel are familiar with and understand the purpose and limitations of protection systems schemes while providing more precise and auditable requirements. However, proposed Reliability Standard PRC-027-1, Requirement R2, Option 2 does not appear to ensure coordination of all bulk electric system elements with protection system functions. Accordingly, pursuant to section 215(d)(5) of the FPA, we propose to direct that NERC develop modifications to proposed Reliability Standard PRC-027-1 that address our concern regarding this gap, as discussed below.

13. In addition, we propose to approve NERC's associated violation risk factors, violation severity levels, implementation plans, and effective dates. We also propose to approve the revised definitions for inclusion in the NERC Glossary. Further, we propose to approve the retirement of Reliability Standard PRC-001-1.1(ii), as requested by NERC.

14. Pursuant to 215(d)(5) of the FPA, we propose to direct that NERC develop modifications to proposed Reliability Standard PRC-027-1 addressing our concern that applicable entities that choose Requirement R2, Option 2 perform (or have already performed) an initial baseline study demonstrating proper coordination of their protection systems. Any additional protection system coordination studies would be

¹⁷ 16 U.S.C. 824o(d)(2).

¹⁰ *Id.* at 13.

¹¹ *Id.* at 15.

¹² *Id.* at 26.

¹³ *Id.* at 27.

necessary only if an applicable entity is confronted with 15 percent or greater fault current deviations from the prior baseline study amounts, as currently proposed in Reliability Standard PRC-027-1, Requirement R2, Option 2. We propose to direct NERC to submit the modified Reliability Standard within 12 months following the effective date of a final rule in this proceeding.

15. Proposed Reliability Standard PRC-027-1, Requirement R2 does not require an initial protection system coordination study if an applicable entity elects Option 2. Unlike Option 1, which requires performance of protection system coordination studies every six years, Option 2 requires applicable entities to “[c]ompare present Fault current values to an established Fault current baseline and perform a Protection System Coordination Study when the comparison identifies a 15 percent or greater deviation.” The proposed Reliability Standard and NERC’s petition do not indicate that the “Fault current baseline” must be established through an initial protection system coordination study. Instead, NERC’s petition states that the baseline must be established “by the effective date of the standard based on short-circuit studies.”¹⁸ The proposed Reliability Standard provides that “the initial Fault current baseline(s) shall be established by the effective date of this Reliability Standard and updated each time a Protection System Coordination Study is performed,” but this language does not require establishing the “initial Fault current baseline” through an initial protection system coordination study.¹⁹ NERC’s petition reinforces this understanding, as noted above, by explicitly allowing the use of short-circuit studies to establish the initial Fault current baseline.

16. While they are related terms, we understand there to be a difference between short-circuit studies and protection system coordination studies. NERC defines protection system coordination study as an “analysis to determine whether Protection Systems operate in the intended sequence during Faults.”²⁰ By comparison, proposed

Reliability Standard PRC-027-1 explains that a short-circuit study is “an analysis of an electrical network that determines the magnitude of the currents flowing in the network during an electrical fault . . . [and] are used as the basis for protection device coordination studies.”²¹ Therefore, while short-circuit studies are inputs to protection system coordination studies, it appears that a short-circuit study differs in scope from a protection system coordination study. Based on this record, it would be incorrect to conclude that proposed Reliability Standard PRC-027-1, Requirement R2, Options 1 and 2 afford the same level of protection system coordination because the former requires a protection system coordination study while the latter does not.

17. While we generally support permitting flexibility in the Reliability Standards to achieve required performance goals, the possibility that some bulk electric system elements may never undergo a protection system coordination study raises reliability concerns. In past serious Bulk-Power System events, mis-coordination was a contributing factor to misoperations and outages. For example, the Arizona Southern California September 8, 2011 Outage Report identified an instance where a transmission owner did not perform a protection system coordination study prior to the implementation of a protection system.²² The 2011 Outage Report stated that this omission negatively affected the reliable operation of the Bulk-Power System during the 2011 event.²³

18. Over the past eleven years, several NERC reports have addressed the importance of protection system coordination to Bulk-Power System reliability. Proposed Reliability Standard PRC-027-1 addresses some of the issues raised in these reports; but without requiring an initial protection system coordination study, the proposed Reliability Standard does not address all of them. In 2006, for example, the NERC System Protection Control Task Force assessed Reliability

Standard PRC-001.²⁴ The report recommended requiring the coordination of all existing protection systems.²⁵

19. In 2009, in a letter from the NERC President to the NERC Board of Trustees and stakeholders, NERC identified generation and transmission mis-coordination as responsible for 30 percent of the misoperations that occurred between 2005 and 2008.²⁶ The 2009 letter stated that mis-coordination between generation and transmission protection systems “has caused two significant system disturbances in the past two years, and resulted in the unnecessary loss of generation during seven additional disturbances in that timeframe.”²⁷ The letter explained that the 2009 NERC System Protection Initiative would initially focus on the area of protection system coordination.²⁸

20. In 2013, NERC issued a Misoperations Report prepared by the Protection System Misoperations Task Force.²⁹ The Misoperations Report identified “ways to potentially reduce the amount of future misoperations” and concluded that “[m]isoperations due to setting errors can potentially be reduced.”³⁰ The identified techniques to reduce incorrect settings, included: Peer reviews, increased training, more extensive fault studies, standard templates for setting standard schemes using complex relays, and periodic review of existing settings when there is a change in system topography.³¹ In the ReliabilityFirst region, NERC identified a category of misoperations caused by “Engineering/Design Issues,” which specifically included setting mis-coordination.³² This category of misoperations was one of the three most common causes of misoperations for above 200 kV facilities within the ReliabilityFirst region.³³ The positive impact on Bulk-Power System reliability

²⁴ NERC SPCTF Assessment of Standard PRC-001-0—System Protection Coordination (2006), http://www.nerc.com/pa/Stand/Project200706SystemProtectionCoordinationDL/NERC_SPCTF_Assessment_of_Standard_PRC.pdf.

²⁵ *Id.* at 3-4.

²⁶ NERC Letter from Rick Sergel, NERC President, Regarding System Protection Initiative at Figure 2 (April 24, 2009).

²⁷ *Id.* at 1.

²⁸ *Id.* at 1-2.

²⁹ NERC Misoperations Report (2013), http://www.nerc.com/comm/PC/Protection%20System%20Misoperations%20Task%20Force%20PSMTF%202/PSMTF_Report.pdf.

³⁰ *Id.* at 3.

³¹ *Id.*

³² *Id.* at 14-15. The 2013 Misoperations Report elaborated that the “Engineering/Design Issues” category included:

³³ *Id.* at 14.

¹⁸ NERC Petition at 36 n.35.

¹⁹ Proposed Reliability Standard PRC-027-1, Requirement R2, Option 2 n.1. Footnote 1 further states that if an “initial baseline was not established by the effective date of this Reliability Standard because of the previous use of an alternate option or the installation of a new BES Element, the entity may establish the baseline by performing a Protection System Coordination Study” (emphasis added). *Id.*

²⁰ NERC Petition, Exhibit A-3, Proposed Definitions. This definition is consistent with the definition of coordination of protection in IEEE Std.

C37.113-1999 (stating that the “process of choosing settings or time delay characteristics of protective devices, such that operation of the devices will occur in a specified order to minimize customer service interruption and power system isolation due to a power system disturbance”).

²¹ Proposed Reliability Standard PRC-027-1, Supplemental Material at 8.

²² Arizona Southern California September 8, 2011 Outage Report at 101-103, <https://www.ferc.gov/legal/staff-reports/04-27-2012-ferc-nerc-report.pdf>.

²³ *Id.* at 100-102.

of reducing misoperations because of “Incorrect setting/logic/design errors” is found in NERC’s 2015 Analysis of System Protection Misoperations:

Incorrect short circuit values and coordination errors. The incorrect short circuit values included outdated or incorrect data used to calculate relay settings. The coordination errors in these cases all involved pilot protection either of insufficient carrier blocking trip delays or of improper choice of ground pickup values used in a blocking scheme. *Id.* at 15.

The State of Reliability 2015 report found that protection system misoperations continued to be a significant contributor to automatic transmission outage severity. In general, transmission system events with protection system misoperations were more impactful than other transmission events. They were also a significant contributor to transmission outage severity, indicating that a reduction in protection system misoperations would lead to an improvement in system reliability.³⁴

21. In 2014, a NERC “lessons learned” document on “Generation Relaying—Underfrequency Protection Coordination” identified a 2014 incident where underfrequency relay trip settings were installed on the system unnecessarily and were not coordinated with a generator’s relay trip setting.³⁵ The document explained that “[u]nintended generator tripping during an underfrequency event can exacerbate the condition.”³⁶ The document also stated that “generator relay protection should be coordinated with all auxiliary power system relaying with specific regard to time-delay settings” in order to ensure reliable generator operation.³⁷

22. The 2016 State of Reliability Report noted that while protection system misoperations declined in 2015, misoperations showed a “statistically significant positive correlation with transmission outage severity and show[ed] a higher relative transmission risk.”³⁸ Misoperations showed the strongest correlation of the factors considered. In addition, the 2016 State of Reliability Report identified that “over 40 percent of the incorrect setting/logic/design misoperations were due to

the miss coordination [*sic*] of ground overcurrent settings” found by ERCOT.³⁹

23. The 2017 State of Reliability Report recognized the significance of protection system misoperations to Bulk-Power System reliability by observing that “[p]rotection system misoperations should remain an area of focus as it continues to be one of the largest contributors to the severity of transmission outages.”⁴⁰

24. For the reasons discussed above, we propose to direct that NERC develop modifications to proposed Reliability Standard PRC–027–1 to address our concern by requiring that applicable entities perform an initial protection coordination study under Requirement R2, Option 2. We propose that applicable entities would have six years from the effective date of a modified Reliability Standard to complete the analysis. An applicable entity could use pre-existing protection system coordination studies to satisfy the proposed requirement provided it was reasonable (*i.e.*, no intervening system changes that would render the earlier work obsolete). After conducting the initial protection system coordination study, subsequent protection system coordination studies would only be required when an applicable entity is confronted with 15 percent or greater fault current deviations from the prior baseline study amounts, as currently proposed in Reliability Standard PRC–027–1, Requirement R2, Option 2. We seek comments on this proposal.

25. Separately, we seek comment from NERC and other interested entities explaining the technical basis for employing a 15 percent deviation threshold in proposed Reliability Standard PRC–027–1, Requirement R2, Option 2. We seek to better understand the basis for this threshold to ensure an adequate record in the proceeding on this matter.

III. Information Collection Statement

26. The collection of information addressed in this Notice of Proposed Rulemaking is subject to review by the Office of Management and Budget (OMB) under section 3507(d) of the Paperwork Reduction Act of 1995.⁴¹ OMB’s regulations require approval of certain information collection requirements imposed by agency rules.⁴² Upon approval of a collection(s) of information, OMB will assign an OMB control number and an expiration

date. Respondents subject to the filing requirements of a rule will not be penalized for failing to respond to these collections of information unless the collections of information display a valid OMB control number.

27. The Commission will submit the information collection requirement to OMB for its final review and approval. We solicit public comments on the need for this information, whether the information will have practical utility, the accuracy of the burden estimates, ways to enhance the quality, utility, and clarity of the information to be collected or retained, and any suggested methods for minimizing respondents’ burden, including the use of automated information techniques.

28. The information collection requirements in this Notice of Proposed Rulemaking in Docket No. RM16–22–000 are associated with FERC–725A,⁴³ FERC–725G,⁴⁴ and FERC–725Y, as discussed below.

29. *Public Reporting Burden:* The number of respondents below is based on an examination of the NERC compliance registry on April 7, 2017, for transmission owners, generator owners, generator operators, and distribution providers within the United States and an estimate of how many entities from that registry will be affected by the Reliability Standards proposed for adoption and implementation. At the time of Commission review of proposed Reliability Standards PRC–027–1 and PER–006–1, 334 transmission owners, 913 generator owners, 875 generator operators, and 365 distribution providers in the United States were registered in the NERC compliance registry. However, under NERC’s compliance registration program, entities may be registered for multiple functions, so these numbers incorporate some double counting. We note that many generation sites share a common

⁴³ FERC–725A (OMB Control No. 1902–0244) currently includes the information collection requirements associated with Reliability Standard PRC–001–1.1(ii), which is proposed for retirement. Only one item per OMB Control No. may be pending OMB review at a time, and an unrelated item affecting FERC–725A is pending OMB review. We are providing estimates of the burden reduction related to FERC–725A for review and comment. However, to submit this Notice of Proposed Rulemaking timely to OMB, the Commission is being conservative and not reducing the burden estimates associated with FERC–725A at this time.

⁴⁴ The information collection requirements related to proposed Reliability Standard PRC–027–1 would normally be included in FERC–725G (OMB Control No. 1902–0252). However, only one item per OMB Control No. may be pending OMB review at a time, and an unrelated item affecting FERC–725G is pending OMB review. For this Notice of Proposed Rulemaking and the related submittal to OMB, we use a placeholder information collection no. of FERC–725G6.

³⁴ NERC, Analysis of System Protection Misoperations at 1 (Dec. 2015) (citations omitted), http://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2015_Analysis_of_System_Protection_Misoperations_Final.pdf (finding that 31 percent of all misoperations were due to “Incorrect setting/logic/design errors”).

³⁵ NERC, Lesson Learned, Generation Relaying—Underfrequency Protection Coordination (2014), http://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20140601_Generation_Relaying_Underfrequency_Protection_Coordination_final.pdf.

³⁶ *Id.*

³⁷ *Id.*

³⁸ 2016 State of Reliability Report at 17, <http://www.nerc.com/pa/RAPA/Pages/default.aspx>.

³⁹ *Id.* at 166.

⁴⁰ 2017 State of Reliability Report at 2.

⁴¹ 44 U.S.C. 3507(d).

⁴² 5 CFR 1320.11.

generator owner or generator operator. The following table provides the estimated proposed annual burden and cost related to information collection requirements in this Notice of Proposed Rulemaking.⁴⁵

PROPOSED CHANGES IN THE NOPR IN DOCKET NO. RM16-22-000

Respondent category and requirement ⁴⁶	Number of respondents (1)	Annual number of responses per respondent (2)	Total number of annual responses (1) * (2) = (3)	Average burden hours & cost per response ⁴⁷ (4)	Annual burden hours & total annual cost (rounded) ⁴⁸ (3) * (4) = (5)
FERC-725G6 (covering Proposed Reliability Standard PRC-027-1)⁴⁹					
TO; Reporting Reqs. R1, R2, & R3	334	1	334	60 hrs.; \$3,941.40	20,040 hrs.; \$1,316,428.
TO; Recordkeeping Reqs.	334	1	334	40 hrs.; \$1,565.60	13,360 hrs.; \$522,910.
GO; Reporting Reqs. R1, R2, & R3	913	1	913	10 hrs.; \$656.90	9,130 hrs.; \$599,750.
GO; Recordkeeping Reqs.	913	1	913	10 hrs.; \$391.40	9,130 hrs.; \$357,348.
DP; Reporting Reqs R1, R2, & R3	365	1	365	10 hrs.; \$656.90	3,650 hrs.; \$239,769.
DP; Recordkeeping Reqs.	365	1	365	10 hrs.; \$391.40	3,650 hrs.; \$142,861.
Sub-Total for Reporting Reqs. for FERC-725G6					32,820 hrs.; \$2,155,947.
Sub-Total for Recordkeeping Reqs. for FERC-725G6					26,140 hrs.; \$1,023,119.
Total Proposed Increase for FERC-725G6					58,960 hrs.; \$3,179,066.
FERC-725Y (covering Proposed Reliability Standard PER-006-1)					
GOP; Reporting Req. R1	875	1	875	5 hrs.; \$328.45	4,375 hrs.; \$287,394.
GOP; Recordkeeping Req.	875	1	875	10 hrs.; \$391.40	8,750 hrs.; \$342,475.
Total Proposed Increase for FERC-725Y					13,125 hrs.; \$629,869.
Reductions to FERC-725A (covering proposed retirement of Reliability Standard PRC-001-1.1)⁵⁰					
GOP; Reporting Req.	875	1	875	40 hrs.; \$2,627.60	35,000 hrs.; \$2,299,150.
GOP; Recordkeeping Req.	875	1	875	50 hrs.; \$1,957.00	43,750 hrs.; \$1,712,375.
TOP; Reporting Req.	177	1	177	60 hrs.; \$3,941.40	10,620 hrs.; \$697,628.
TOP; Recordkeeping Req.	177	1	177	70 hrs.; \$2,739.80	12,390 hrs.; \$484,945.
BA; Reporting Req.	99	1	99	32 hrs.; \$2,102.08	3,168 hrs.; \$208,106.
BA; Recordkeeping Req.	99	1	99	20 hrs.; \$782.80	1,980 hrs.; \$77,497.
Reduction Sub-Total Reporting Reqs. for FERC-725A					48,788 hrs.; \$3,204,884.
Reduction Sub-Total Recordkeeping Reqs. for FERC-725A					58,120 hrs.; \$2,274,817.
Reduction, Sub-Total for FERC-725A					106,908 hrs.; \$5,479,701 (reduction).
NET TOTAL REDUCTION FOR PROPOSED CHANGES IN NOPR IN RM16-22-000.					34,823 hrs.; \$1,670,766 (reduction).

Titles: FERC-725G6 (Mandatory Reliability Standard PRC-027-1) and FERC-725Y (Mandatory Reliability Standards: Operations Personnel Training (PER-005-2 and PER-006-1).

Action: Revision to existing collections and proposed new information collection.

OMB Control Nos.: To be determined (FERC-725G6)⁵¹ and 1902-0279 (FERC-725Y).

Respondents: Business or other for profit, and not for profit institutions.

Frequency of Responses: Annual recordkeeping and reporting

requirements, with some reporting requirements being at least once every six years.

Necessity of the Information: Proposed Reliability Standards PRC-027-1 and PER-006-1 set forth requirements for coordination of protection systems and personnel training on specific topics essential to reliability. The Commission proposes to approve proposed Reliability Standards PRC-027-1 and PER-006-1, which will replace Commission-approved Reliability Standard PRC-001-1.1(ii). The proposed Reliability Standards PRC-027-1 and PER-006-1 improve

upon the existing Reliability Standard PRC-001-1.1(ii) because the proposed Reliability Standards assign responsibilities to entities with more appropriate resources and skill sets to conduct studies required to coordinate protection systems. The proposed Reliability Standards also provide additional clarity to the applicable entities.

Internal review: The Commission has assured itself, by means of its internal review, that there is specific, objective support for the burden estimates associated with the information requirements.

⁴⁵ TO=transmission owner; TOP=transmission operator; GO=generator owner; GOP=generator operator; DP=distribution provider; and BA=balancing authority.

⁴⁶ For each Reliability Standard, the Measure shows the acceptable evidence for the associated Reporting Requirement, and the Compliance section details the related Recordkeeping Requirement.

⁴⁷ Based on data from the Bureau of Labor Statistics, the average hourly cost (wages plus benefits) is \$65.69/hour for an engineer, and \$39.14/hour for a record clerk. The hourly cost for

an engineer is used for reporting requirements; the hourly cost for a record clerk is used for recordkeeping requirements.

⁴⁸ For display purposes, the cost figures in column 5 have been rounded.

⁴⁹ Some of the reporting requirements are required at least every six calendar years. In this table, the Commission assumes that respondents might work on some of their elements each year; the annual burden estimate shown is one sixth of the burden associated with one complete six-year cycle. For example, for each transmission owner: (a)

The annual reporting burden associated with Requirements R1, R2, and R3 is shown as 60 hours per year, and (b) the burden for the six-year cycle would be six times that, or a total of 360 hours.

⁵⁰ The estimates for average annual burden hours per response are based on Order No. 693, FERC Stats. & Regs. ¶ 31,242 at PP 1906, 1907. The numbers of respondents and estimated hourly costs are based on current figures.

⁵¹ OMB will assign a Control No. when it issues a decision.

30. Interested persons may obtain information on the reporting requirements by contacting the Federal Energy Regulatory Commission, Office of the Executive Director, 888 First Street NE., Washington, DC 20426 [Attention: Ellen Brown, email: DataClearance@ferc.gov, phone: (202) 502-8663, fax: (202) 273-0873].

31. Comments concerning the information collection proposed in this Notice of Proposed Rulemaking and the associated burden estimates should be sent to the Commission in this docket and may also be sent to the Office of Management and Budget, Office of Information and Regulatory Affairs [Attention: Desk Officer for the Federal Energy Regulatory Commission]. For security reasons, comments should be sent by email to OMB at the following email address: oir_submission@omb.eop.gov. Please refer to OMB Control Nos. to be determined (FERC-725G6) and 1902-0279 (FERC-725Y) in your submittal.

IV. Environmental Analysis

32. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.⁵² The action proposed here falls within the categorical exclusion in the Commission's regulations for rules that are clarifying, corrective or procedural, for information gathering, analysis, and dissemination.⁵³

V. Regulatory Flexibility Act

33. The Regulatory Flexibility Act of 1980 (RFA) generally requires a description and analysis of proposed rules that will have significant economic impact on a substantial number of small entities.⁵⁴ The Small Business Administration (SBA) defines which utilities are small businesses based on the number of employees that a utility and its affiliates employ.⁵⁵

34. The proposed Reliability Standard PRC-027-1 (included in FERC-725G6) will apply to approximately 1,612 entities (334 transmission owners, 913 generator owners, and 365 distribution providers) in the United States.⁵⁶ Pursuant to SBA regulations, the

employment threshold for transmission is 500 employees, for generator owners is between 250 and 750 employees (depending on the fuel source), and for distribution providers is 1,000 employees. We estimate that the annual cost for each entity will be \$1,048 for each generator owner and distribution provider and \$5,507 for each transmission owner.

35. The proposed Reliability Standard PER-006-1 (included in FERC-725Y) will apply to approximately 875 generator operators in the United States. Pursuant to SBA regulations the employment threshold for generator operators is between 250 and 750 employees (depending on the fuel source). We estimate that the annual cost for each generator operator will be \$719.

36. In addition, this Notice of Proposed Rulemaking proposes the retirement of Reliability Standard PRC-001-1.1(ii) (included in FERC-725A). That retirement would decrease the annual estimated cost for 875 generator operators by \$4,585 each, for 177 transmission operators by \$6,681 each, and for 99 balancing authorities by \$2,885 each. For the generator operators affected by this retirement and the proposed Reliability Standard PER-006-1, the net annual effect would be a decrease of \$3,866 each. We estimate the net annual cost of this Notice of Proposed Rulemaking would vary, by type of entity, from an annual decrease of \$6,681 (for each transmission operator) to an annual increase of \$5,507 (for each transmission owner). We view this as a minimal economic impact for each entity. Accordingly, we certify that the proposed Reliability Standards PRC-027-1 and PER-006-1 and retirement of Reliability Standard PRC-001-1.1 (ii) will not have a significant economic impact on a substantial number of small entities.

VI. Comment Procedures

37. The Commission invites interested persons to submit comments on the matters and issues proposed in this notice to be adopted, including any related matters or alternative proposals that commenters may wish to discuss. Comments are due January 22, 2018. Comments must refer to Docket No. RM16-22-000, and must include the commenter's name, the organization they represent, if applicable, and their address in their comments.

38. The Commission encourages comments to be filed electronically via the eFiling link on the Commission's Web site at <http://www.ferc.gov>. The Commission accepts most standard word processing formats. Documents

created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format. Commenters filing electronically do not need to make a paper filing.

39. Commenters that are not able to file comments electronically must send an original of their comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street NE., Washington, DC 20426.

40. All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability section below. Commenters on this proposal are not required to serve copies of their comments on other commenters.

VII. Document Availability

41. In addition to publishing the full text of this document in the **Federal Register**, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through the Commission's Home Page (<http://www.ferc.gov>) and in the Commission's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street NE., Room 2A, Washington, DC 20426.

42. From the Commission's Home Page on the Internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number of this document, excluding the last three digits, in the docket number field.

43. User assistance is available for eLibrary and the Commission's Web site during normal business hours from the Commission's Online Support at (202) 502-6652 (toll free at 1-866-208-3676) or email at ferconlinesupport@ferc.gov, or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. Email the Public Reference Room at public.referenceroom@ferc.gov.

By direction of the Commission.

Issued November 16, 2017.

Kimberly D. Bose,
Secretary.

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⁵² *Regulations Implementing the National Environmental Policy Act of 1969*, Order No. 486, FERC Stats. & Regs. ¶ 30,783 (1987) (cross-referenced at 41 FERC ¶ 61,284).

⁵³ 18 CFR 380.4(a)(2)(ii).

⁵⁴ 5 U.S.C. 601-612.

⁵⁵ 13 CFR 121.201, Subsector 221.

⁵⁶ Many respondents serve multiple roles in the NERC compliance registry, so there is likely double counting in the estimates.