

163 FERC ¶ 61,184  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Part 40

[Docket No. RM16-22-000; Order No. 847]

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

(Issued June 7, 2018)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Federal Energy Regulatory Commission (Commission) approves 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).

EFFECTIVE DATE: This rule will become effective [**60 days after publication in the FEDERAL REGISTER**].

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SUPPLEMENTARY INFORMATION:

163 FERC ¶ 61,184  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Kevin J. McIntyre, Chairman;  
Cheryl A. LaFleur, Neil Chatterjee,  
Robert F. Powelson, and Richard Glick.

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

Docket No. RM16-22-000

ORDER NO. 847

FINAL RULE

(Issued June 7, 2018)

1. Pursuant to section 215 of the Federal Power Act (FPA), the Commission approves Reliability Standards PRC-027-1 (Coordination of Protection Systems for Performance During Faults) and PER-006-1 (Specific Training for Personnel).<sup>1</sup> The North American Electric Reliability Corporation (NERC), the Commission-certified Electric Reliability Organization (ERO), submitted Reliability Standards PRC-027-1 and PER-006-1 for approval. As discussed below, we determine that Reliability Standard PRC-027-1, which is designed 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, and PER-006-1, which

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<sup>1</sup> 16 U.S.C. 824o (2012).

is intended to ensure that personnel are trained on specific topics essential to reliability to perform or support real-time operations of the bulk electric system, improve upon the currently-effective Reliability Standards. In addition, based on the record before us, we do not adopt the NOPR proposal to direct NERC to modify 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.

2. The Commission also approves 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 approves the retirement of currently-effective Reliability Standard PRC-001-1.1(ii) (System Protection Coordination) as proposed by NERC. Finally, the Commission approves new and revised definitions submitted by NERC for incorporation in the NERC Glossary for the following terms: (1) “protection system coordination study;” (2) “operational planning analysis;” and (3) “real-time assessment.”<sup>2</sup>

## **I. Background**

### **A. Section 215 and Mandatory Reliability Standards**

3. Section 215 of the FPA requires a Commission-certified ERO to develop mandatory and enforceable Reliability Standards, subject to Commission review and

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<sup>2</sup> NERC Glossary of Terms Used in NERC Reliability Standards (NERC Glossary).

approval.<sup>3</sup> Once approved, the Reliability Standards may be enforced by the ERO subject to Commission oversight or by the Commission independently.<sup>4</sup> In 2006, the Commission certified NERC as the ERO pursuant to section 215 of the FPA.<sup>5</sup>

**B. Order No. 693**

4. 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.<sup>6</sup>

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

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<sup>3</sup> *Id.* 824o(c), (d).

<sup>4</sup> *Id.* 824o(e).

<sup>5</sup> *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).

<sup>6</sup> *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).

respects system requirements as soon as possible and no longer than 30 minutes after they receive notice of the failure.<sup>7</sup>

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

5. On September 2, 2016, NERC submitted a petition seeking Commission approval of Reliability Standards PRC-027-1 and PER-006-1.<sup>8</sup> NERC stated that the 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.<sup>9</sup> NERC explained that the intent of the submitted 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 asserted that the submitted 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 systems and that protection systems are appropriately studied, coordinated, and monitored.

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

<sup>8</sup> Reliability Standards PRC-027-1 and PER-006-1 are not attached to this Final Rule. The Reliability Standards are available on the Commission's eLibrary document retrieval system in Docket No. RM16-22-000 and are posted on the NERC website, <http://www.nerc.com>.

<sup>9</sup> NERC Petition at 10.

## 1. Reliability Standard PER-006-1

6. NERC stated that 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.<sup>10</sup> NERC explained that Reliability Standard PER-006-1 will also cover plant personnel who are responsible for real-time control of a generator. NERC maintained that it is appropriate to train plant personnel in the functionality of protection systems and remedial action schemes. NERC observed that Reliability Standard PER-006-1 replaces the phrase “purpose and limitations” used in Reliability Standard PRC-001-1(ii) with the phrase “operational functionality” to clearly identify the objective of the training.<sup>11</sup> NERC also noted that 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 noted that Reliability Standard PER-006-1 does not specify a periodicity for the required training.

## 2. Reliability Standard PRC-027-1

7. NERC asserted that 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

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<sup>10</sup> *Id.* at 13.

<sup>11</sup> *Id.* at 15.

Protection Systems continue to operate in their intended sequence.<sup>12</sup>

According to NERC, 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.<sup>13</sup>

8. NERC stated that 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.<sup>14</sup>

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

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<sup>12</sup> *Id.* at 26.

<sup>13</sup> *Id.* at 27.

<sup>14</sup> *Id.* at 26.



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

10. NERC stated that Reliability Standard PRC-001-1.1(ii) includes six requirements that are either addressed by Reliability Standards approved by the Commission or by Reliability Standards PER-006-1 and PRC-027-1. Specifically, NERC explained that Reliability Standard PRC-001-1.1(ii), Requirement R1 has been partially replaced by Reliability Standards PER-003-1 and PER-005-2. NERC continued that Reliability Standard PER-006-1 and the 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 asserted 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.<sup>15</sup> NERC stated that Reliability Standard PRC-027-1 will replace Reliability Standard PRC-001-1.1(ii), Requirements R3 and R4. NERC also explained 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.<sup>16</sup> NERC further stated that Reliability Standard PRC-001-1.1(ii), Requirement R6 has been replaced with Reliability Standards TOP-001-3 and TOP-003-3.

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

<sup>16</sup> *Id.* at 6.

**D. Notice of Proposed Rulemaking**

11. On November 16, 2017, the Commission issued a Notice of Proposed Rulemaking proposing to approve Reliability Standards PRC-027-1 and PER-006-1.<sup>17</sup> The NOPR proposed to determine that Reliability Standards PRC-027-1 and PER-006-1 improve upon the currently-effective Reliability Standards. However, the NOPR observed that 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 because it does not require an initial protection system coordination study. Accordingly, the NOPR also proposed to direct NERC, pursuant to section 215(d)(5) of the FPA, to submit modifications to Reliability Standard PRC-027-1 within 12 months of the effective date of this Final Rule 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.<sup>18</sup>

12. In addition, the NOPR proposed to approve the associated violation risk factors and violation severity levels, implementation plan, and effective date proposed by

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<sup>17</sup> *Coordination of Protection Systems for Performance During Faults and Specific Training for Personnel Reliability Standards*, Notice of Proposed Rulemaking, 82 FR 55,535 (Nov. 22, 2017), 161 FERC ¶ 61,159, at P 12 (2017) (NOPR). The NOPR was erroneously published a second time in the Federal Register on November 28, 2017, which changed the comment date to January 29, 2018. 82 FR 56,759 (Nov. 30, 2017); 82 FR 56,186 (Nov. 28, 2017).

<sup>18</sup> NOPR, 161 FERC ¶ 61,159 at PP 14, 24.

NERC.<sup>19</sup> The NOPR also proposed to approve the revised definitions for inclusion in the NERC Glossary.<sup>20</sup> Further, the NOPR proposed to approve the retirement of Reliability Standard PRC-001-1.1(ii), as requested by NERC.<sup>21</sup>

13. In response to the NOPR, the Commission received fifteen sets of comments. We address below the issues raised in the NOPR and comments. The Appendix to this Final Rule lists the entities that filed comments in response to the NOPR.

## II. Discussion

14. Pursuant to section 215(d)(2) of the FPA, we approve Reliability Standards PER-006-1 and PRC-027-1 as just, reasonable, not unduly discriminatory or preferential, and in the public interest, as both Reliability Standards improve on currently-effective Reliability Standard PRC-001-1.1(ii) in important ways.<sup>22</sup> As discussed below, we do not adopt the NOPR proposal to direct NERC to modify Reliability Standard PRC-027-1 to require coordination of all bulk electric system elements with protection system functions.

15. Reliability Standard PRC-027-1 improves on currently-effective Reliability Standard PRC-001-1.1(ii) by: (1) modifying the applicability section to include the appropriate functional entity types with the responsibilities, resources, and skill sets to

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<sup>19</sup> *Id.* P 13.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> 16 U.S.C. 824o(d)(2).

conduct the studies required to coordinate protection systems, and (2) listing the protection system functions on all bulk electric system elements that require coordination. Reliability Standard PER-006-1, along with existing formal training requirements in the Personnel Performance, Training, and Qualifications (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.

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

### **Initial Protection System Coordination Study**

#### **NOPR**

17. The NOPR proposed to direct that NERC develop modifications to Reliability Standard PRC-027-1 to ensure coordination of all bulk electric system elements with protection system functions by requiring that applicable entities perform an initial protection coordination study under Requirement R2, Option 2.

#### **Comments**

18. NERC does not support the proposed directive because it believes that the proposed directive is unduly burdensome and unsupported by the materials cited in the NOPR. NERC contends that while the "proposed directive could potentially help reduce

misoperations caused by coordination issues . . . [it] would also impose a significant burden on industry . . . requiring a substantial expenditure of resources.”<sup>23</sup> NERC also states that it “expects that many entities will choose to do a full Protection System Coordination Study . . . for their more impactful [bulk electric system] Elements” and that “it is highly likely that the overwhelming majority of entities have already conducted coordination studies for their Protection Systems.”<sup>24</sup> While NERC agrees with the goal of reducing protection system misoperation rates on the bulk electric system, it contends that recent misoperation rates demonstrate that mis-coordination of existing protection systems “does not present a widespread risk to [bulk electric system] reliability that would necessitate the expenditure of resources required to conduct full Protection System Coordination Studies for every [bulk electric system] element with a Protection System.”<sup>25</sup>

19. In addition, NERC and other commenters contend that the materials cited in the NOPR do not support the proposal to modify Reliability Standard PRC-027-1.<sup>26</sup> NERC, EEI and Tri-State contend that the Arizona Southern California September 8, 2011 Outage Report is unresponsive because it addresses mis-coordination of remedial action

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<sup>23</sup> NERC Comments at 4.

<sup>24</sup> *Id.* at 5-6.

<sup>25</sup> *Id.* at 6.

<sup>26</sup> *See generally* NERC Comments; EEI Comments; Tri-State Comments; Entergy Comments; ITC Comments.

schemes and not protection systems.<sup>27</sup> NERC and Tri-State assert that the NERC System Protection Control Task Force Report addressed issues specific to generation transmission interfaces and did not apply broadly to all bulk electric system elements with protection systems.<sup>28</sup> NERC and Tri-State also contend that the 2009 letter from the NERC President to the NERC board of Trustees and stakeholders is no longer relevant because mis-coordination issues are now responsible for a smaller percentage of events and that mis-coordination has not recently caused any significant system disturbances.<sup>29</sup> NERC and Tri-State claim that Reliability Standard PRC-004 now requires applicable entities to mitigate the effects of misoperations by implementing a corrective action plan that has reduced misoperations.<sup>30</sup>

20. Further, while NERC agrees with the 2013 Misoperations Report that reducing misoperations, including mis-coordination events, is an important priority for bulk electric system reliability, NERC contends that the report does not indicate that requiring protection system coordination studies for all applicable elements, as proposed in the NOPR, is the only or optimal way to reduce mis-coordination events.<sup>31</sup> EEI also contends that the 2013 Misoperations Report shows that human error and lack of training

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<sup>27</sup> NERC Comments at 7; EEI Comments at 7; Tri-State Comments at 7-8.

<sup>28</sup> NERC Comments at 7-8; Tri-State Comments at 8-9.

<sup>29</sup> NERC Comments at 8; Tri-State Comments at 9-10.

<sup>30</sup> NERC Comments at 8; Tri-State Comments at 9.

<sup>31</sup> NERC Comments at 9.

are responsible for a significant portion of misoperations.<sup>32</sup>

21. NERC, EEI, and Tri-State explain that the 2014 incident identified in the “lessons learned” document on “Generation Relaying – Underfrequency Protection Coordination” was unrelated to protection system coordination.<sup>33</sup>

22. Finally, NERC states that while the 2016 State of Reliability Report highlights the continued need to reduce misoperations, the report does not indicate that there is a need to require entities to perform a protection system coordination study for every bulk electric system element with a protection system.<sup>34</sup> NERC also contends that the 2017 State of Reliability Report observes a continuing decline in misoperation rates, but that misoperations are a priority for NERC.<sup>35</sup> NERC states that the misoperations rate within the Texas Reliability Entity Region observed in the 2016 State of Reliability Report was mitigated by the time NERC issued the 2017 State of Reliability Report.<sup>36</sup> NERC claims that this reduction in misoperation events is evidence that requiring entities to perform protection system coordination studies is unnecessary because the entities will address the misoperation events without specific requirements in Reliability Standards.<sup>37</sup>

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<sup>32</sup> EEI Comments at 7.

<sup>33</sup> NERC Comments at 10; EEI Comments at 8; Tri-State Comments at 10.

<sup>34</sup> NERC Comments at 10.

<sup>35</sup> *Id.* at 9.

<sup>36</sup> NERC Comments at 11; *see also* Entergy Comments at 8.

<sup>37</sup> NERC Comments at 11.

23. Other commenters do not support the proposal to direct NERC to develop modifications to Reliability Standard PRC-027-1 because they generally contend that the proposed directive is not necessary and would impose a burden without a proportional reliability benefit.<sup>38</sup> Hydro One estimates that it will need approximately 30,000 hours of work to perform an initial protection system coordination study.<sup>39</sup> Tri-State estimates that it would take an engineer at least twenty hours to perform a protection system coordination study at each of its approximately 700 terminals.<sup>40</sup> Tri-State estimates that the actual cost to all applicable entities could be more than \$120 million.<sup>41</sup> PG&E estimates a cost to industry “greatly in excess of \$100 million” and asserts that the proposed directive would require PG&E to perform coordination studies for 95 percent of the PG&E bulk electric system at a cost of \$3.5 million in engineering labor.<sup>42</sup>

24. Entergy requests that the Commission find that NERC’s approach for requiring protection system coordination studies achieves the Reliability Standard’s “reliability

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<sup>38</sup> APPA/TAPS Comments at 3; EEI Comments at 3; El Paso Electric Comments at 4; Entergy Comments at 4; Hydro One Comments at 1-2; ITC Comments at 3; LPPC Comments at 2; NPPD Comments at 1; NRECA/ELCON Comments at 5; Oncor Comments at 1; PG&E Comments at 2; SCE&G Comments at 1; Tri-State Comments at 4.

<sup>39</sup> Hydro One Comments at 1.

<sup>40</sup> *Id.* at 13.

<sup>41</sup> *Id.*

<sup>42</sup> PG&E Comments at 3.



goals effectively and efficiently.”<sup>43</sup> Entergy opines that, by adopting NERC’s proposal without modification, the Commission appropriately would give “due weight” to the technical expertise of the ERO. Entergy asserts that NERC properly supported Requirement R2 by setting forth evidence of the frequency of coordination events over a four-year period, which shows that only 11 percent of misoperation events (17 events out of 151) and only 2.9 percent of total events (17 out of 574) involved Protection System coordination issues. Further, Entergy claims that, in proposing the Reliability Standard, NERC was aware of the possibility that some bulk electric system elements may never undergo a Protection System Coordination Study and that “NERC does not afford this possibility the same risk as the Commission.”<sup>44</sup> According to Entergy, “NERC has properly balanced the implementation costs and reliability benefits of the proposed PRC-027-1 Reliability Standard and determined that Option 2 is sufficient to ensure reliability” and the Commission should defer to NERC’s expertise, or otherwise provide more support to justify a deviation from NERC’s proposal.

25. In addition, some commenters expressed concern that applicable entities may not have maintained sufficient documentation to substantiate prior protection system coordination studies and, as result, entities would have to perform new protection system coordination studies purely for compliance purposes.<sup>45</sup>

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<sup>43</sup> Entergy Comments at 5.

<sup>44</sup> *Id.* at 9-10.

<sup>45</sup> ITC Comments at 4; Entergy Comments at 1; NPPD Comments at 1; PG&E (*continued ...*)

26. As an alternative to the proposed directive, NERC and other commenters suggest that Reliability Standard PRC-027-1 be modified so that it requires an applicable entity to conduct an initial baseline protection system coordination study on a certain subset of its bulk electric system elements (i.e., based on a higher voltage or higher risk protection systems).<sup>46</sup> NERC and other commenters also request that the Commission permit NERC to allow more than 6 years to complete the initial baseline protection system coordination studies (i.e., 10 or 12 years) if the Commission directs NERC to modify Reliability Standard PRC-027-1.<sup>47</sup> EEI recommends that if the Commission continues to have concerns about Reliability Standard PRC-027-1, Requirement R2, Option 2, as an alternative to the proposed directive, a final rule should direct NERC “to assess the

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Comments at 3.

<sup>46</sup> NERC Comments at 11-12; El Paso Electric Comments at 2; Entergy Comments at 12; NRECA/ELCON Comments at 6-7.

<sup>47</sup> NERC Comments at 12; El Paso Electric Comments at 2-3; Entergy Comments at 12-13; NRECA/ELCON Comments at 6-7. Separately, El Paso Electric contends that the six-year cycle proposed by NERC in Reliability Standard PRC-027-1, Requirement R2 is too short and directs resources away from “other activities that have a greater likelihood of improving reliability outcomes in a demonstrable way.” El Paso Electric Comments at 2. We disagree. NERC recognized the potential burden imposed by Requirement R2 and determined that six years “balance[d] the resources required to perform Protection System Coordination Studies and the potential reliability impacts created by incremental changes of Fault current over time.” NERC Petition at 40. Moreover, during the standard drafting process, some commenters indicated that six years was too long an interval. *See, e.g.*, NERC Petition, Exhibit G (Summary of Development History and Record of Development) at 1479 of pdf (ReliabilityFirst recommending a 24-month period to conduct protection system coordination study), 2169 of pdf (Texas RE stating that six years is too long of a time period between studies of fault currents).

effectiveness of Option 2 after the implementation of the proposed Reliability Standard and if necessary make technical recommendations to improve the efficiency and effectiveness as appropriate.”<sup>48</sup>

27. Idaho Power supports the proposed directive.<sup>49</sup> Idaho Power supports eliminating Reliability Standard PRC-027-1, Requirement R2, Option 2 because it contends that Option 1 is a more robust option explaining that it is “preferable because it is more likely to address miscoordinations.”<sup>50</sup>

### **Commission Determination**

28. Based on the record before us, we do not adopt the directive proposed in the NOPR. The record in this proceeding supports the NOPR’s conclusion that mis-coordination of protection systems may pose a potential reliability risk and, as currently drafted, Reliability Standard PRC-027-1, Requirement R2, Option 2 permits applicable entities to forego protection system coordination studies under certain circumstances.<sup>51</sup> However, we are persuaded by the statements from NERC and other

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<sup>48</sup> EEI Comments at 6.

<sup>49</sup> Idaho Power Comments at 1-2.

<sup>50</sup> *Id.* at 2.

<sup>51</sup> *See, e.g.*, NERC Comments at 6 (“NERC and the standard drafting team concluded that Protection System coordination did not present a prevalent enough risk to the reliable operation of the [bulk electric system] to warrant imposing the burden of requiring applicable entities to perform a full Protection System Coordination Study for every [bulk electric system] Element with a Protection System.”); Entergy Comments at 9 (“In proposing the Reliability Standard, NERC was aware of the possibility that some bulk electric system elements may never undergo a Protection System Coordination (*continued ...*)

commenters that applicable entities generally perform, or will choose to perform for their significant facilities, protection system coordination studies even in the absence of a Reliability Standard requirement.<sup>52</sup> We also recognize the concern raised by commenters regarding the burden of compliance. Specifically, we recognize the concern that were the NOPR directive adopted, applicable entities could be required to re-run protection system coordination studies for the sole purpose of generating compliance documentation, even if such entities already performed protection system coordination studies that remain valid but lack documentation to substantiate compliance. Accordingly, pursuant to 215(d)(2) of the FPA, we approve Reliability Standard PRC-027-1 and do not direct modifications to the Reliability Standard.<sup>53</sup>

### **III. Information Collection Statement**

29. The collections of information addressed in this Final Rule are subject to review by the Office of Management and Budget (OMB) under section 3507(d) of the Paperwork Reduction Act of 1995.<sup>54</sup> OMB's regulations require approval of certain information collection requirements imposed by agency rules.<sup>55</sup> Upon approval of a collection(s) of information, OMB will assign an OMB control number and an expiration

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Study.”).

<sup>52</sup> See, e.g., NERC Comments at 5; NPPD Comments at 1; Tri-State Comments at 10; ITC Comments at 4.

<sup>53</sup> 16 U.S.C. 824o(d)(2).

<sup>54</sup> 44 U.S.C. 3507(d) (2012).

<sup>55</sup> 5 CFR 1320.11 (2017).

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.

30. The Commission solicited public comments in the NOPR 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. The Commission did not receive comments regarding the burden estimates for the Reliability Standards approved herein (i.e., Reliability Standards PRC-027-1 and PER-006-1).<sup>56</sup>

31. The information collection requirements in this Final Rule in Docket No. RM16-22-000 are associated with FERC-725A, FERC-725G, and FERC-725Y, as discussed below.<sup>57</sup>

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<sup>56</sup> As discussed above, several commenters addressed the potential burden of a new version of Reliability Standard PRC-027-1 modified, pursuant to the Commission's directive, to require initial protection system coordination studies. *See, e.g.*, Tri-State Comments at 12. However, those comments are not relevant to the burden estimates contained in this Final Rule because, herein, the Commission only approves Reliability Standards PRC-027-1 and PER-006-1.

<sup>57</sup> In the NOPR in Docket No. RM16-22-000, some of the reporting requirements were included under FERC-725G6 (OMB Control No. 1902-0300), a temporary place holder, because FERC-725G was pending review at OMB in an unrelated action. As indicated below, those reporting requirements are now included under FERC-725G (OMB Control No. 1902-0252). When the NOPR in Docket No. RM16-22-000 was issued, another unrelated item affecting FERC-725A was pending OMB review. Burden estimates were provided in order to solicit public comments, but the burden reduction to FERC-725A was not submitted to OMB at that time. The burden reduction to  
(continued ...)

32. Public Reporting Burden: The number of respondents below is based on an examination of the NERC compliance registry on December 1, 2017, for transmission owners, generator owners, generator operators, and distribution providers within the United States and an estimate of how many such entities from that registry will be affected by the Reliability Standards in this Final Rule for adoption and implementation. As of December 1, 2017, 337 transmission owners, 971 generator owners, 944 generator operators, and 419 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 generator owner or generator operator. The following table provides the estimated annual burden and cost related to information collection requirements in this Final Rule.<sup>58</sup>

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FERC-725A for this Final Rule will be submitted to OMB for review.

<sup>58</sup> TO=transmission owner; TOP=transmission operator; GO=generator owner; GOP=generator operator; DP=distribution provider; and BA=balancing authority.

<b>Changes due to the Final Rule in Docket No. RM16-22-000</b>					
<b>Respondent Category and Requirement<sup>59</sup></b>	<b>Number of Respondents (1)</b>	<b>Annual Number of Responses per Respondent (2)</b>	<b>Total Number of Annual Responses (1)*(2)=(3)</b>	<b>Average Burden Hours &amp; Cost per Response<sup>60</sup> (4)</b>	<b>Annual Burden Hours &amp; Total Annual Cost (rounded)<sup>61</sup> (3)*(4)=(5)</b>
<b>FERC-725G (Reliability Standard PRC-027-1)<sup>62</sup></b>					
TO; Reporting Reqs. R1, R2, & R3	337	1	337	60 hrs.; \$3,941.40	20,220 hrs.; \$1,328,252
TO; Recordkeeping Reqs.	337	1	337	40 hrs.; \$1,565.60	13,480 hrs.; \$527,607

<sup>59</sup> For each Reliability Standard, the Measure shows the acceptable evidence for the associated Reporting Requirement, and the Compliance section details the related Recordkeeping Requirement.

<sup>60</sup> The estimates for cost per hour are based on May 2016 wage figures from the Bureau of Labor Statistics (BLS, [https://www.bls.gov/oes/current/naics2\\_22.htm](https://www.bls.gov/oes/current/naics2_22.htm)) and BLS benefits information from March 20, 2018 (for December 2017, <https://www.bls.gov/news.release/ecec.nr0.htm>). The estimated hourly cost, for wages plus benefits, are: (a) \$68.12/hour, for electrical engineer, Occupation Code 17-2071, and (b) \$39.14/hour, for information and record clerk, Occupation Code 43-4199.

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

<sup>61</sup> For display purposes, the cost figures in column 5 have been rounded.

<sup>62</sup> 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.

GO; Reporting Reqs. R1, R2, & R3	971	1	971	10 hrs.; \$656.90	9,710 hrs.; \$637,830
GO; Recordkee ping Reqs.	971	1	971	10 hrs.; \$391.40	9,710 hrs.; \$380,049
DP; Reporting Reqs R1, R2, & R3	419	1	419	10 hrs.; \$656.90	4,190 hrs.; \$275,241
DP; Recordkee ping Reqs.	419	1	419	10 hrs.; \$391.40	4,190 hrs.; \$163,997
<i>Sub-Total for Reporting Reqs. for FERC- 725G</i>					34,120 hrs.; \$2,241,323
<i>Sub-Total for Recordkee ping Reqs. for FERC- 725G</i>					27,380 hrs.; \$1,072,653
<b>Total Increase for FERC- 725G</b>					61,500 hrs.; \$3,313,976
<b>FERC-725Y (Reliability Standard PER-006-1)<sup>63</sup></b>					
GOP; Reporting Req. R1	944	1	944	5 hrs.; \$328.45	4,720 hrs.; \$310,057

<sup>63</sup> In order to provide improved information on the Reliability Standard and associated burden, FERC-725Y (rather than FERC-725A) will cover the burden required by PER-006-1.



GOP; Recordkeeping Req.	944	1	944	10 hrs.; \$391.40	9,440 hrs.; \$369,482
<b>Total Increase for FERC-725Y</b>					14,160 hrs.; \$679,539
<b>Reductions to FERC-725A (retirement of Reliability Standard PRC-001-1.1)<sup>64</sup></b>					
GOP; Reporting Req.	944	1	944	40 hrs.; \$2,627.60	37,760 hrs.; \$2,480,454
GOP; Recordkeeping Req.	944	1	944	50 hrs.; \$1,957.00	47,200 hrs.; \$1,847,408
TOP; Reporting Req.	176	1	176	60 hrs.; \$3,941.40	10,560 hrs.; \$693,686
TOP; Recordkeeping Req.	176	1	176	70 hrs.; \$2,739.80	12,320 hrs.; \$482,205
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
<i>Reduction Sub-Total Reporting Reqs. for FERC-725A</i>					51,484 hrs.; \$3,382,246

<sup>64</sup> The estimates for average annual burden hours per response are based on figures in Order No. 693. 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.

<i>Reduction Sub-Total Recordkeep ing Reqs. for FERC- 725A</i>					61,500 hrs.; \$2,407,110
<b>Reduction Sub-Total for FERC- 725A</b>					112,984 hrs.; \$5,789,356 (reduction)
<b>NET TOTAL REDUCTI ON FOR CHANGE S IN RM16-22- 000</b>					<b>37,324 hrs.; \$1,795,841 (reduction)</b>

Titles: FERC-725A (Mandatory Reliability Standards for the Bulk-Power System), FERC-725G (Reliability Standards for the Bulk Power System: PRC Reliability Standards) and FERC-725Y (Mandatory Reliability Standards: Operations Personnel Training).

Action: Revisions to existing collections.

OMB Control Nos.: 1902-0244 (FERC-725A); 1902-0252 (FERC-725G) 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: 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 approves Reliability Standards PRC-027-1 and PER-006-1, which will replace Commission-approved Reliability Standard PRC-001-1.1(ii). Reliability Standards PRC-027-1 and PER-006-1 improve upon existing Reliability Standard PRC-001-1.1(ii) because the Reliability Standards assign responsibilities to entities with more appropriate resources and skill sets to conduct studies required to coordinate protection systems. The approved Reliability Standards also provide additional clarity to 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.

#### **IV. Environmental Analysis**

33. 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.<sup>65</sup> 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.<sup>66</sup>

#### **V. Regulatory Flexibility Act**

34. The Regulatory Flexibility Act of 1980 (RFA) generally requires a description and

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<sup>65</sup> *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).

<sup>66</sup> 18 CFR 380.4(a)(2)(ii) (2017).

analysis of final rules that will have significant economic impact on a substantial number of small entities.<sup>67</sup> The Small Business Administration (SBA) defines which utilities are small businesses based on the number of employees that a utility and its affiliates employ.<sup>68</sup>

35. Reliability Standard PRC-027-1 (included in FERC-725G) will apply to approximately 1,727 entities (337 transmission owners, 971 generator owners, and 419 distribution providers) in the United States.<sup>69</sup> Pursuant to SBA regulations, the small business threshold for Electric Bulk Power Transmission and Control is 500 employees. For generator owners, the small generator threshold ranges from 250 to 750 employees (depending on the fuel source). For Electric Power Distribution, the small business threshold 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.

36. Reliability Standard PER-006-1 (included in FERC-725Y) will apply to approximately 944 generator operators in the United States. Pursuant to SBA regulations the small business threshold for generator operators ranges from 250 to 750 employees (depending on the fuel source). We estimate that the annual cost for each generator

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<sup>67</sup> 5 U.S.C. 601-612 (2012).

<sup>68</sup> 13 CFR 121.201, Subsector 221 (2017).

<sup>69</sup> Many respondents serve multiple roles in the NERC compliance registry, so there is likely double counting in the estimates.

operator will be \$719.

37. The retirement of Reliability Standard PRC-001-1.1(ii) (included in FERC-725A) will decrease the annual estimated cost for 944 generator operators by \$4,585 each, for 176 transmission operators by \$6,681 each, and for 99 balancing authorities by \$2,885 each. For the generator operators affected by this retirement and approval of Reliability Standard PER-006-1, the net annual effect would be a decrease of \$3,866 each.

38. We estimate the net annual cost of this Final Rule 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 this Final Rule will not have a significant economic impact on a substantial number of small entities.

## **VI. Document Availability**

39. 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 FERC's Home Page (<http://www.ferc.gov>) and in FERC'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.

40. From FERC'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 excluding the last three digits of this document in the

docket number field.

41. User assistance is available for eLibrary and the FERC's website during normal business hours from FERC Online Support at 202-502-6652 (toll free at 1-866-208-3676) or email at [ferconlinesupport@ferc.gov](mailto:ferconlinesupport@ferc.gov), or the Public Reference Room at 202-502-8371, TTY 202-502-8659. E-mail the Public Reference Room at [public.referenceroom@ferc.gov](mailto:public.referenceroom@ferc.gov).

#### **VII. Effective Date and Congressional Notification**

42. The Final Rule is effective [**INSERT DATE 60 days from publication in FEDERAL REGISTER**]. The Commission has determined, with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB, that this rule is not a "major rule" as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996. This Final Rule is being submitted to the Senate, House, and Government Accountability Office.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.

## Appendix

### List of Commenters

<b>APPA/TAPS</b>	American Public Power Association and Transmission Access Policy Study Group
<b>EI</b>	Edison Electric Institute
<b>El Paso Electric</b>	El Paso Electric Company
<b>Entergy</b>	Entergy Services, Inc.
<b>Hydro One</b>	Hydro One Networks Inc.
<b>Idaho Power</b>	Idaho Power Company
<b>ITC</b>	International Transmission Company d/b/a ITC Transmission, Michigan Electric Transmission Company, LLC, ITC Midwest LLC and ITC Great Plains, LLC
<b>LPPC</b>	Large Public Power Council
<b>NPPD</b>	Nebraska Public Power District
<b>NERC</b>	North American Electric Reliability Corporation
<b>NRECA/ELCON</b>	National Rural Electric Cooperative Association and the Electricity Consumers Resource Council
<b>Oncor</b>	Oncor Electric Delivery
<b>PG&amp;E</b>	Pacific Gas and Electric Company
<b>SCE&amp;G</b>	South Carolina Electric and Gas Company
<b>Tri-State</b>	Tri-State Generation and Transmission Association, Inc.

Document Content(s)

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