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DEPARTMENT OF ENERGY
Federal Energy Regulatory Commission

18 CFR Part 40

[Docket No. RM14-8-000]

Protection System Maintenance Reliability Standard

AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of proposed rulemaking.

SUMMARY: Pursuant to the section regarding Electric Reliability of the Federal Power Act, the Commission proposes to approve a revised Reliability Standard, PRC-005-3 (Protection System and Automatic Reclosing Maintenance). In addition, the Commission proposes to approve one new definition and six revised definitions referenced in the proposed Reliability Standard, the assigned violation risk factors and violation severity levels, and NERC's proposed implementation plan. Consistent with Order No. 758, the proposed Reliability Standard requires applicable entities to test and maintain certain autoreclosing relays as part of a protection system maintenance program. The Commission also proposes to direct NERC to submit a report based on actual performance data, and simulated system conditions from planning assessments, two years after the effective date of the proposed standard, which addresses whether the proposed Reliability Standard applies to an appropriate set of autoreclosing relays that can affect Bulk-Power System reliability. Further, the Commission proposes to direct NERC to

modify the proposed Reliability Standard to include maintenance and testing of supervisory relays, as discussed below.

DATES: Comments are due **[INSERT DATE 60 days after publication in the FEDERAL REGISTER].**

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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SUPPLEMENTARY INFORMATION:

1. Pursuant to section 215 of the Federal Power Act (FPA),[1] the Commission proposes to approve a revised Reliability Standard, PRC-005-3 (Protection System and Automatic Reclosing Maintenance). In addition, the Commission proposes to approve one new definition and six revised definitions referenced in the proposed Reliability Standard, the assigned violation risk factors and violation severity levels, and NERC's proposed implementation plan. Consistent with Order No. 758,[2] the proposed Reliability Standard requires applicable entities to test and maintain certain autoreclosing relays as part of a protection system maintenance program. The Commission also proposes to direct NERC to submit a report based on actual performance data, and simulated system conditions from planning assessments, two years after the effective date of the proposed standard, which addresses whether the proposed Reliability Standard applies to an appropriate set of autoreclosing relays that can affect Bulk-Power System reliability. Further, the Commission proposes to direct NERC to modify the proposed Reliability Standard to include maintenance and testing of supervisory relays, as discussed below.

I. Background

A. Regulatory Background

2. Section 215 of the FPA requires a Commission-certified Electric Reliability Organization (ERO) to develop mandatory and enforceable Reliability Standards, subject

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[1] 16 U.S.C. 824o (2012).

[2] *Interpretation of Protection System Reliability Standard,* Order No. 758, 138 FERC ¶ 61,094, *clarification denied*, 139 FERC ¶ 61,227 (2012).

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 FPA section 215.[5]

3. In 2007, in Order No. 693, the Commission approved an initial set of Reliability Standards submitted by NERC, including initial versions of four protection system and load-shedding-related maintenance standards: PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0.[6] In addition, the Commission directed NERC to develop a revision to PRC-005-1 incorporating a maximum time interval during which to conduct maintenance and testing of protection systems, and to consider combining into one standard the various maintenance and testing requirements for all of the maintenance and testing-related Reliability Standards for protection systems, underfrequency load shedding (UFLS) equipment and undervoltage load shedding (UVLS) equipment.

4. The Commission issued Order No. 758 in February 2012, in response to NERC's request for approval of its interpretation of Requirement R1 of the then-current version of

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[3] 16 U.S.C. 824o(c) and (d).

[4] *See id.* 824o(e).

[5] *North American Electric Reliability Corp.*, 116 FERC ¶ 61,062, *order on reh'g & compliance*, 117 FERC ¶ 61,126 (2006), *aff'd sub nom. Alcoa, Inc. v. FERC*, 564 F.3d 1342 (D.C. Cir. 2009).

[6] *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, FERC Stats. & Regs. ¶ 31,242 at PP 1474, 1492, 1497, and 1514, *order on reh'g*, Order No. 693-A, 120 FERC ¶ 61,053 (2007).

protection system maintenance standard, PRC-005-1. The Commission accepted NERC's proposed interpretation of PRC-005-1, which identified the types of protection system equipment to which the Reliability Standard applied. In addition, the Commission directed NERC to develop modifications to the standard to address gaps highlighted by the proposed interpretation, including the need to address reclosing relays that may affect the reliability of the Bulk-Power System.[7]

5. In the discussion surrounding that directive, the Commission described certain scenarios where reclosing relays might impact reliability,[8] but recognized that it may not be appropriate to include all applications of autoreclosing relays in the protection system maintenance standard:

> The NOPR raised a concern that excluding the maintenance and testing of reclosing relays that can exacerbate fault conditions when not properly maintained and coordinated will result in a gap affecting Bulk-Power System reliability. We agree with MidAmerican that while there are only limited circumstances when a reclosing relay can actually affect the

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[7] The approved interpretation stated:

> Request R3: Does R1 require maintenance and testing of transmission line re-closing relays?
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> Response: No. 'Protective Relays' refer to devices that detect and take action for abnormal conditions. Automatic restoration of transmission lines is not a 'protective' function.

Order No. 758, 138 FERC ¶ 61,094 at P 7.

[8] The Commission referred to one incident involving the misoperation or poor coordination of reclosing relays that ultimately resulted in the loss of over 4,000 MW of generation and multiple 765 kV lines, to illustrate the effect reclosing relays can have on the reliability of the Bulk-Power System. *See* Order No. 758, 138 FERC ¶ 61,094 at P 23 and n.32.

> reliability of the Bulk-Power System, there are some reclosing relays, e.g., whose failure to operate or that misoperate during an event due to lack of maintenance and testing, may negatively impact the reliability of the Bulk-Power System.
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> . . .
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> In the NOPR we stated that a misoperating or miscoordinated reclosing relay may result in the reclosure of a Bulk-Power System element back onto a fault or that a misoperating or miscoordinated reclosing relay may fail to operate after a fault has been cleared, thus failing to restore the element to service. As a result, the reliability of the Bulk-Power System would be affected. In addition, misoperated or miscoordinated relays may result in damage to the Bulk-Power System. For example, a misoperation or miscoordination of a reclosing relay causing the reclosing of Bulk-Power System facilities into a permanent fault can subject generators to excessive shaft torques and winding stresses and expose circuit breakers to systems conditions less than optimal for correct operation, potentially damaging the circuit breaker.[9]

6. Prior to issuance of Order No. 758, NERC had begun development of revisions to its initial maintenance standards for protection systems and underfrequency and undervoltage load shedding equipment in response to the Order No. 693 directives. Those revisions, reflected in a consolidated Reliability Standard, PRC-005-2, were approved by the Commission on December 24, 2013.[10] In the order approving PRC-005-2, the Commission found that the revised standard represented an improvement over the four standards it would replace because it incorporated specific, required minimum

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[9] *Id.* PP 23-24 (footnotes excluded).

[10] *Protection System Maintenance Reliability Standard,* Order No. 793, 145 FERC ¶ 61,253 (2013).

maintenance activities and maximum time intervals for maintenance of individual components of the protection systems and load shedding equipment affecting the bulk electric system.[11]

B. NERC Petition and Proposed Standard PRC-005-3

7. On February 14, 2014, NERC submitted a petition seeking approval of proposed Reliability Standard PRC-005-3, developed in response to the Order No. 758 directive to include maintenance and testing of reclosing relays that can affect the reliable operation of the Bulk-Power System.[12] In its petition, NERC maintains that the proposed standard promotes reliability by making certain reclosing relays subject to a mandatory maintenance program, including adding detailed tables of minimum maintenance activities and maximum maintenance intervals for the reclosing relays. NERC explains that the purpose of PRC-005-3 is to "document and implement programs for the maintenance of all Protection Systems and Automatic Reclosing affecting the reliability of the Bulk Electric System so that they are kept in working order."[13]

8. NERC explains that the subset of reclosing applications included in proposed PRC-005-3 is based on the findings of a technical study performed, in response to Order No. 758, by NERC's System Analysis and Modeling Subcommittee (SAMS) and System Protection and Control Subcommittee (SPCS). The resulting study (the Joint Committee

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[11] *Id.* P 2.

[12] *See* NERC Petition at 2, 7.

[13] *Id.* at 8.

Report) is attached to NERC's petition as Exhibit D, and examines both the scope of reclosing relays that could affect the reliable operation of the Bulk-Power System and appropriate maintenance intervals and activities for those relays.[14]

9. In its petition, NERC explains that reclosing relays are "utilized on transmission systems to restore elements to service following automatic circuit breaker tripping," and are "typically installed to lessen the burden on Transmission operators of manually restoring transmission lines."[15] NERC explains that "while more efficient restoration of transmission lines following temporary faults does provide an inherent reliability benefit, certain applications of reclosing relays can result in undesired relay operation or operation not consistent with relay design, leading to adverse reliability impacts."[16] After examining these potential reliability impacts, the Joint Committee Report recommended that the revised standard should:

> 1) explicitly address maintenance and testing of reclosing relays applied as an integral part of a Special Protection System; and 2) include maintenance and testing of reclosing relays at or in proximity to generating plants at which the total installed capacity is greater than the capacity of the largest generating unit within the Balancing Authority Area.[17]

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[14] *See id.* at 3.

[15] *Id.* at 9 (citations to Joint Committee Report omitted).

[16] *Id.*

[17] *Id.* at 10.

In addition, NERC explains that the Joint Committee Report recommended that "proximity" to these large generators be defined as "substations one bus away if the substation is within 10 miles of the plant."[18]

10. The Joint Committee Report recommendations are reflected in proposed Reliability Standard PRC-005-3, which now includes the following among the applicable facilities:

> 4.2.6.1 Automatic Reclosing applied on terminals of Elements connected to the BES bus located at generating plant substations where the total installed gross generating plant capacity is greater than the gross capacity of the largest BES generating unit within the Balancing Authority Area.
>
> 4.2.6.2 Automatic Reclosing applied on the terminals of all BES Elements at substations one bus away from generating plants specified in Section 4.2.6.1 when the substation is less than 10 circuit-miles from the generating plant substation.

[18] *Id.*

> 4.2.6.3 Automatic Reclosing applied as an integral part of an SPS specified in Section 4.2.4.[19]

11. NERC explains that the Joint Committee Report examined two areas of concern, based on the Commission's statements in Order No. 758. Specifically, the Joint Committee examined (1) situations in which reclosing relays fail to operate when required to maintain Bulk-Power System reliability, and (2) situations in which reclosing relays operate in a manner not consistent with design, adversely affecting reliability.[20] As for the first category, NERC explains the Joint Committee Report recognized that "[b]ecause the potential for permanent power system faults exists for any application, it is not possible to depend on successful reclosing relay operation as a sole means to guarantee reliability or satisfy the Requirements contained in Reliability Standards."[21] However, the Joint Committee Report recognized one exception, where reclosing relays are included as an integral part of a Special Protection System. Accordingly, NERC proposes to include reclosing relays of Special Protection Systems under the revised standard's maintenance requirements, under Applicability section 4.2.6.3.

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[19] *Id.*, Ex. A at 1-2. In addition, relays that would otherwise be subject to the proposed standard under sections 4.2.6.1 and 4.2.6.2 "may be excluded if the equipment owner can demonstrate that a close-in three-phase fault present for twice the normal clearing time . . . does not result in a total loss of gross generation in the Interconnection exceeding the gross capacity of the largest BES generating unit within the Balancing Authority Area."

[20] *See* NERC Petition at 10.

[21] *Id.* at 11.

12. With respect to the second category examined by the committees, i.e., situations in which reclosing relays operate in a manner not consistent with design, NERC notes that the Joint Committee Report found that "premature reclosing has the potential to cause generating unit or plant instability," and that there could be an impact on the reliable operation of the Bulk-Power System if the loss of generating resources exceeds the largest unit within the Balancing Authority Area.[22] NERC explains that reclosing at transmission substations may affect the stability of generating units when applied in proximity to a generating plant, and that the Joint Committee Report therefore recommended including reclosing relays applied one bus away from these same generating stations when the substation is less than 10 circuit-miles from the applicable generating plant substation. The Joint Committee Report indicated that generating units generally exhibit a stable response to a bus fault at the high-side of the generator step-up transformer if the fault location is on the order of one mile, but recommended a 10-mile threshold in order to incorporate a significant safety factor.[23]

13. As NERC explains in its petition, NERC staff conducted its own analysis of this definition of "proximity," "to verify that the 10-mile threshold provides adequate margin to ensure maintenance and testing of all reclosing relays where failure could result in generating station instability."[24] According to NERC, it performed tests at the high-

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[22] *Id.* at 15.

[23] *Id.* at 17.

[24] *Id.* at 20.

voltage switchyard for 145 lines at 50 generating stations, using a sampling of generating stations and simulating a three-phase fault on each line. In addition, faults were simulated for a duration that NERC maintains "conservatively represents" two times the normal clearing time for a three-phase fault.[25] NERC states that this test "approximates the response if a transmission line circuit breaker is reclosed into a fault without any time delay due to a reclosing relay failure."[26]

14. NERC found that the generating unit response was stable for 110 of the close-in faults; stable for faults at one mile from the generation station for 22 of the remaining 35 lines; and stable for faults five miles from the station for 10 of the remaining 13 lines. For the three remaining cases, two were associated with two transmission lines of approximately 120 miles leaving the same generating station. NERC indicates that it repeated its analysis at each remote bus at the remote terminal of those lines, and found that the generating units were stable for close-in three-phase faults on each line. The third case involved a two-mile line, and resulted in instability of the generating units for faults anywhere on the line. On further testing, NERC found that the generating units remained stable for close-in faults on each of the lines terminating at the remote bus of the two-mile line, "confirming that the criterion is conservative."[27]

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[25] *Id.*

[26] *Id.*

[27] *Id.* at 21.

15. NERC proposes modifications to the language of Requirements R1, R3 and R4 of PRC-005-2 to reflect the inclusion of automatic reclosing relays.[28] NERC also proposes to include a new definition as part of the revised standard, as follows:

> **Automatic Reclosing** – Includes the following Components:
>
> - Reclosing relay.
> - Control circuitry associated with the reclosing relay.

NERC states that the definition is intended for use within the proposed Reliability Standard only, and would not be incorporated into the NERC Glossary of Terms.[29] In addition, NERC proposes modifications to four defined terms referenced in PRC-005-2, Protection System Maintenance Plan, Component Type, Component, and Countable Event, to reflect the inclusion of automatic reclosing components. Finally, NERC proposes to revise the definitions of Unresolved Maintenance Issue and Segment, also currently referenced in PRC-005-2, to capitalize the reference to the defined term "Component."

16. NERC's proposed implementation plan for PRC-005-3 incorporates the phased-in implementation period approved for PRC-005-2, with the addition of compliance dates for the new requirements for automatic reclosing components. Accordingly, retirement of the legacy Reliability Standards (PRC-005-1b, PRC-008-0, PRC-011-0, PRC-017-0) will continue to "key off" the regulatory approval date for PRC-005-2, although PRC-

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[28] *Id.*

[29] *Id.* at 12.

005-2 itself will be retired in the United States immediately prior to the effective date of PRC-005-3, on the first day of the first calendar quarter twelve months following regulatory approval.[30] According to NERC, applicable entities will continue to calculate compliance dates for Protection System Components by counting forward from the applicable regulatory approval date of PRC-005-2, and for Automatic Reclosing Components by counting forward from the effective date of Commission approval of PRC-005-3. Finally, for any newly identified Automatic Reclosing Components (e.g., resulting from the addition or retirement of generating units), compliance would be required by the end of the third calendar year following identification of those Components.

17. NERC states that the violation risk factors proposed in PRC-005-3 track those in the currently approved standard PRC-005-2, and that the violation severity levels now include the additional component (Automatic Reclosing) in a manner consistent with the approach taken for PRC-005-2.

C. NERC Supplemental Filings

18. On June 4, 2014, NERC submitted two additional filings in this docket: (1) proposed revisions to a violation severity level assigned to Requirement R1 in approved Reliability Standard PRC-005-2 and in proposed Reliability Standard PRC-

[30] *See id.* at 22-24.

005-3;[31] and (2) an errata to NERC's petition in this docket to reflect proper capitalization of defined terms as used in the proposed standard. NERC explains that the violation severity level revision reflects the change directed by the Commission when it approved PRC-005-2, in Order No. 793, regarding the failure to include station batteries in a time-based maintenance program. In accordance with that directive NERC has now assigned a "severe" violation severity level to that failure for both PRC-005-2- and PRC-005-3.

II. Discussion

19. Pursuant to section 215(d)(2) of the FPA, the Commission proposes to approve Reliability Standard PRC-005-3, one new definition and six revised definitions referenced in the proposed standard, the assigned violation risk factors and violation severity levels, and NERC's proposed implementation plan. Generally, the proposed Reliability Standard appears to adequately address the Commission directives from Order No. 758 with respect to the inclusion of reclosing relays in an adequate protection system maintenance program, and will enhance reliability by reducing the risk of autoreclosing relay misoperations by imposing minimum maintenance activities and maximum maintenance intervals for these relays.

20. However, to further validate the scope of the proposed applicability, we propose to direct that NERC submit a report based on actual performance data and simulated system

[31] The proposed violation severity level revision was also submitted in Docket No. RM13-7-000.

conditions from planning assessments, two years after the effective date of the proposed standard, which addresses whether the proposed Reliability Standard applies to an appropriate set of autoreclosing relays that can affect Bulk-Power System reliability. In addition, as discussed below, we propose to direct NERC to modify the proposed standard to include supervisory devices such as synchronism check (sync-check) and voltage relays.

A. Proposed Reporting on Effectiveness of PRC-005-3

21. Consistent with the Commission's directive in Order No. 758,[32] proposed Reliability Standard PRC-005-3 would expand the scope of the protection system maintenance standard requirements to apply to a limited subset of autoreclosing relays. As discussed above, the proposed Reliability Standard includes thresholds that are intended to limit the applicable set of reclosing relays to those that affect the reliable operation of the Bulk-Power System. For example, the proposed standard would mandate testing and maintenance of only those autoreclosing relays located within ten miles of a generation plant that has a greater gross capacity than the largest single generating unit in the Balancing Authority Area. NERC provides technical support for the applicability thresholds, both in the Joint Committee Report and the NERC study of the ten-mile threshold.[33]

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[32] *See* Order No. 758, 138 FERC ¶ 61,094 at P 23.

[33] *See* NERC Petition at 15-21 and Exh. D (Joint Committee Report) at 2-7.

22. While NERC provides support for the proposed thresholds, we nonetheless have concerns whether the thresholds are too narrow and that the standard therefore does not encompass a comprehensive set of autoreclosing relays that could affect the reliable operation of the Bulk-Power System. Thus, while we propose to approve the proposed Reliability Standard, we also propose that NERC submit a report, two years after the effective date of the standard, addressing the effectiveness of the autoreclosing provisions based on (1) actual operations data, and (2) simulated system conditions from planning assessments.

23. With regard to actual operations data, we note that NERC has an ongoing effort that collects and analyses performance data regarding actual misoperations events, requiring the submission of data according to a set of specifications that includes misoperation categories and cause codes.[34] We propose that NERC enhance the granularity of this database to gather relevant information regarding events that involve autoreclosing relays, such as distance from the fault, whether the relay reclosed into the fault, and whether that reclosure caused or exacerbated an event. Relevant information

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[34] *See http://www.nerc.com/pa/RAPA/Pages/Misoperations.aspx.* Protection system misoperations are reported by transmission owners and generator owners via regional procedures based on the PRC-003-1 standard requirements. Using a common template developed by the eight Regional Entities and NERC, misoperations of facilities operated at 100 kV and above are collected NERC-wide. NERC is proposing to continue collection of the data through the NERC ROP Section 1600 process immediately upon the retirement of the data reporting obligation in Reliability Standard PRC-004-2a. *See* http://www.nerc.com/pa/RAPA/ProctectionSystemMisoperations/Misoperations_Data_Request_for_Public_Comment.pdf.

collected in this database could then be analyzed and submitted in the proposed report. We seek comment on this proposal, including whether this is the right/meaningful data for the type of analysis we seek, and whether other types of granular data would be useful to analyze the impact of autoreclosing relays in system events. While we propose to have NERC include this data in the report to be filed two years after this standard takes effect, we also propose to have NERC continue this enhancement of its data collection subsequently.

24. Further, we believe that simulated contingency analyses, generated as part of required planning assessments, could serve as an appropriate benchmark or metric to assess whether the right set of autoreclosing relays is included in the proposed Reliability Standard, or whether further enhancements or modifications are appropriate to include those autoreclosing relays that affect reliable operation of the Bulk-Power System. As one possible approach, we believe it could be useful to be able to compare the set of reclosing relays identified by the thresholds set forth in proposed PRC-005-3 with the set of reclosing relays studied pursuant to approved Reliability Standard TPL-001-4.[35]

25. Requirement R4 of TPL-001-4 requires transmission planners and planning coordinators to perform contingency analyses that explicitly include an examination of the impact of high speed reclosing into a fault (both successful and unsuccessful), to ensure that system performance criteria can still be met (including ensuring no loss of

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[35] *Transmission Planning Reliability Standards,* Order No. 786, 145 FERC ¶ 61,051 (2013).

generators outside of the protection zone). Specifically, Requirement R4 of TPL-001-4 states in relevant part that "[e]ach Transmission Planner and Planning Coordinator shall perform the Contingency analyses listed in Table 1," and the sub-requirements of Requirement R4 require that the analysis include the following:

> The analyses shall include the impact of subsequent . . . [s]uccessful high speed (less than one second) reclosing and unsuccessful high speed reclosing into a Fault where high speed reclosing is utilized.[36]

26. While there may be valid reasons to differentiate between what should be studied under TPL-001-4 versus what must be maintained in the prescribed fashion under PRC-005-3, we believe the TPL-001-4 contingency analysis could provide a meaningful check or benchmark to examine the validity of the applicability thresholds proposed in PRC-005-3. Accordingly, we propose to require NERC to submit a report two years after the effective date of Reliability Standard PRC-005-3, comparing the set of reclosing relays identified as having an impact on reliability using the contingency analyses generated under TPL-001-4, versus the set of relays covered by PRC-005-3.

27. We request that NERC and other commenters address whether the information expected to be generated pursuant to the contingency analyses required by Requirement R4 of TPL-001-4 could provide a meaningful metric or benchmark in analyzing the scope of PRC-005-3, i.e., whether PRC-005-3's thresholds include an appropriate set of autoreclosing relays that could affect the reliable operation of the Bulk-Power System.

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[36] Reliability Standard TPL-001-4, Requirement R4, R4.3.1 and R4.3.1.1.

We seek comment on this proposal, including whether there are refinements that could improve this benchmark. Likewise, we seek comment whether NERC or other interested entities believe there is a more appropriate or more accurate benchmark or metric to achieve the purpose discussed above. We further seek comment on the potential burden associated with collecting and evaluating the information expected to be generated under TPL-001-4. While transmission planners will, in any case, be responsible for conducting the studies required under Requirement R4 of TPL-001-4, we seek to understand the incremental burden of collecting and analyzing this data for purposes of the proposed benchmarking and reporting. Likewise, commenters suggesting an alternative analysis that could serve as an appropriate benchmark or metric should include a discussion on the potential burden of the suggested alternative.

B. Supervisory Devices

28. Proposed Reliability Standard PRC-005-3 defines the components of an "Automatic Reclosing" device to include both the reclosing relay and its associated control circuitry. The proposed Reliability Standard does not include supervisory devices such as sync-check and/or voltage relays that may be critical to the operation of an autoreclosing scheme.[37] In general, supervisory devices, like sync-check relays, are applied to monitor voltages on both sides of a circuit breaker to allow autoreclosing for

[37] While NERC does not directly address this issue in its petition, in response to one commenter's requests for clarification during development of the standard, the standard drafting team noted that "supervisory capability such as sync-check and line switch status are not included." NERC Petition, Exh. H (Summary of Development History and Complete Development Record) at 507.

desirable conditions (e.g., proper phase angle and voltage) or block autoreclosing for undesirable conditions.

29. The Joint Committee Report states that the NERC subcommittees dismissed the need to consider supervision failures because the committee believed supervisory device failure to be a small subset of autoreclosing failures.[38] While, according to NERC, premature or undesired autoreclosing due to the failure of a supervisory element may in fact be a relatively small subset of autoreclosing failures, we are not persuaded to exclude such devices from the maintenance and testing requirements of proposed PRC-005-3. Notably, the Commission rejected almost identical arguments in Order No. 733, when it directed NERC to include supervisory relays as part of its Transmission Relay Loadability (TRL) standard:

> Exelon asserts that the TRL Reliability Standard's goal is to address protective relays that have a history of contributing to cascades, and that relays enabled only when other relays or associated systems fail are extremely unlikely to be a factor in a disturbance because they are enabled so infrequently.
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> . . .
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> [W]e disagree with those commenters that suggest that the Commission should approve section 3.1 because it excludes from the Reliability Standard's scope relays and protection systems that rarely operate. These commenters appear to suggest that protection systems that rarely operate do not pose

[38] *See, e.g.,* NERC Petition, Exh. D (Joint Committee Report) at 6 (noting that premature autoreclosing has the potential to cause generating unit loss of life due to shaft fatigue, but concluding that supervisory failures need not be considered because "[p]remature autoreclosing due to a supervision failure is a small subset of autoreclosing failures").

> a risk to the reliability of the Bulk-Power System. We disagree. A protective relay, as an integral part of the Bulk-Power System, must be dependable and secure; it must operate correctly when required to clear a fault and refrain from operating unnecessarily, i.e., during non-fault conditions or for faults outside of its zone of protection, regardless of how many times the relay must actually operate.[39]

30. As we explained previously, supervisory devices essentially "supervise" the actions of an autoreclosing scheme; i.e., allow autoreclosing for desirable conditions or block autoreclosing for undesirable conditions.[40] The Joint Committee Report explains that, "failure of a synchronism check function may allow a close when static system angles are greater than designed, or inhibit a close when static system angles are less than designed."[41] While we agree with the Joint Committee Report that a failure of a sync-check relay would not send a signal to reclose into a fault, NERC has not explained in its petition how a failure of a sync-check relay for *undesirable conditions*, such as when static system angles are greater than designed, would not allow autoreclosing and consequently, the reliability concern that we discussed in Order No. 758.[42]

31. Moreover, the proposed exclusion of supervisory devices in PRC-005-3 is inconsistent with other aspects of the Joint Committee Report regarding the overall function of autoreclosing relays, which explicitly recognized that "there are a few main

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[39] *Transmission Relay Loadability Reliability Standard,* Order No. 733, 130 FERC ¶ 61,221, at PP 257, 269 (2010).

[40] *See supra* P 28.

[41] NERC Petition, Exh. D (Joint Committee Report) at 4.

[42] *See* Order No. 758, 138 FERC ¶ 61,094 at P 24.

characteristics shared by most autoreclosing relays," and identified these as supervision functions, timing functions, and output functions.[43] The Joint Committee Report also concluded that "when analyzing autoreclosing relay failure modes, the functions described above are one of the most likely to lead to failure."[44]

32. Accordingly, to address the concerns set forth here, we propose to direct that NERC develop modifications to PRC-005-3 that address our concerns regarding the appropriateness of including supervisory relays under the mandatory maintenance and testing provisions of the Reliability Standard.

III. Information Collection Statement

33. The proposed Version 3 Reliability Standard, PRC-005-3, retains the same evidence retention requirements approved in the Version 2 standard, PRC-005-2, requiring entities to maintain documentation of maintenance activities for the longer of (1) the two most recent performances of each distinct maintenance activity for the component; or (2) all performances of each distinct maintenance activity for the component since the previous scheduled audit date. Because the largest maintenance interval prescribed for certain kinds of components is twelve years, an entity may be required to retain its maintenance records up to 24 years (two maintenance cycles). Thus, the potential data retention requirement exceeds the three-year period that is routinely

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[43] NERC Petition, Exh. D (Joint Committee Report) at 3-4.

[44] *Id.* at 4.

allowed for regulations requiring record retention, under the Office of Management and Budget (OMB) regulations implementing the Paperwork Reduction Act (PRA).[45]

34. However, the PRA regulations allow the Commission to approve a standard that requires record retention for more than three years if necessary to satisfy statutory requirements (e.g. of FPA section 215) or based on other "substantial need:" (d)(2) Unless the agency is able to demonstrate, in its submission for OMB clearance, that such characteristic of the collection of information is necessary to satisfy statutory requirements or other substantial need, OMB will not approve a collection of information – ...(iv) Requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years).[46]

35. In its petition, NERC explains that the two maintenance cycle evidence retention period "assures that documentation is available to show that the time between maintenance cycles correctly meets the maintenance interval limits."[47] In addition, NERC maintains that the data that must be retained are "the usual and customary documents maintained by these entities today to document maintenance internally."[48] Moreover, NERC explains that "shortening the time period for retention would require that the maintenance intervals be reduced as well, which would significantly increase

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[45] *See* 5 CFR 1320.5(d)(2)(iv).

[46] *Id.*

[47] NERC Petition at 25, & n. 45 (citing to Exh. E (Supplementary Reference and FAQ Document) at 39).

[48] *Id.* at 25-26.

capital maintenance costs since entities would need to maintain Components under tighter time constraints."[49] Because of these factors, NERC concludes that the burden of evidence retention under the proposed standard would be "minimal compared to the increased capital costs that would result from shortening the intervals to create a shorter maximum retention time."[50]

36. We agree with NERC that the data retention obligations appear to be negligible as compared to the benefit and reduced cost of a longer maintenance interval for the highly reliable components that are subject to such lengthy data retention requirements, and note that the data retention provisions were developed by industry experts and subject to approval by stakeholder vote. However, we seek comment regarding the reasonableness of the proposed data retention obligations. Specifically, for relays with a 12-year maintenance cycle, the Commission seeks comment from NERC and other interested entities whether: (a) there is substantial need to keep the maintenance records for two cycles, and (b) retaining these types of records for 24 years is overly burdensome or costly. In addition, we seek comment as to whether entities would keep maintenance records for a similar time frame even if it were not required under PRC-005-3. Finally, we seek comment on any alternatives to the two maintenance cycle/24 year record retention approach which could prove to be less costly and burdensome, or more

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[49] *Id.* at 26.

[50] *Id.* NERC notes that it has requested that the standard drafting team currently working on another revision to the PRC-005 standard consider possible alternatives to the evidence retention period of at least two maintenance cycles.

effective. To the extent such alternatives are identified, we seek information on the associated costs and benefits of the alternative approach.

37. The following collection of information contained 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.[51] OMB's regulations require approval of certain information collection requirements imposed by agency rules.[52] 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.

38. We solicit comments on the Commission's 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. Specifically, the Commission asks that any revised burden or cost estimates submitted by commenters be supported by sufficient detail to understand how the estimates are generated.

39. The Commission proposes to approve Reliability Standard PRC-005-3, which will replace PRC-005-2 (Protection System Maintenance). The proposed Reliability Standard

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[51] 44 U.S.C. 3507(d) (2006).

[52] 5 CFR 1320.11 (2012).

expands the existing standard to cover reclosing schemes that meet certain criteria, imposing mandatory minimum maintenance activities and maximum maintenance intervals for the various reclosing scheme components. Because the specific requirements were designed to reflect common industry practice, entities are not expected to experience a meaningful change in actual maintenance and documentation practices. However, applicable entities will have to perform a one-time review of their reclosing schemes to determine which ones fall under PRC-005-3, and, if they have applicable reclosing schemes, review current reclosing scheme maintenance programs to ensure that they meet the requirements of the proposed standard PRC-005-3. Accordingly, all information collection costs are expected to be limited to the first year of implementation of the revised standard.

40. Public Reporting Burden: Our estimate below regarding the number of respondents is based on an analysis of the generating plants within the footprint of the PJM Interconnection, LLC (PJM) that meet the inclusion criteria of the proposed standard. There are an estimated 23 generating plants in PJM that meet these criteria. These generating plants represent approximately 47,000 MW's of the approximately 184,000 MWs within PJM. Based on 2012 data, total installed capacity in the continental United States is 1,153,000 MWs.[53] Applying the PJM ratio to this total results in

[53] *See* http://search.usa.gov/search?utf8=%E2%9C%93&affiliate=eia.doe.gov&query=generation+capacity+all+states&search=Submit and http://www.eia.gov/electricity/annual/html/epa_08_07_a.html.

144 plant sites nationwide to which PRC-005-3 would be applicable. We also assume that a substation will be located within 10 miles of each plant site, resulting in an estimated total number of entities that meet the inclusion criteria of 288.[54] Finally, we assume that all generator owners (GOs) and transmission owners (TOs) must review their existing plant and substation sites to determine applicability under the proposed standard.

41. Affected entities must perform a one-time review of their existing reclosing scheme maintenance program to ensure that it contains at a minimum the activities listed in Table 4 in Reliability Standard PRC-005-3, and that the activities are performed within the applicable maximum interval listed in Table 4. If the existing reclosing scheme maintenance program does not meet the criteria in Reliability Standard PRC-005-3, the entity will have to make certain adjustments to the program.

Requirement	Number of Affected Entities (1)	Average Number of Hours per Review (2)	Total Burden Hours (3) (1)*(2)	Total Cost (5) (3)*$73[55]

[54] This estimate conservatively assumes that the proximate substation would be owned by a different entity than the generating plant.

[55] This figure is the average of the salary plus benefits for a manager and an engineer (rounded to the nearest dollar). The figures are taken from the Bureau of Labor Statistics at (http://bls.gov/oes/current/naics3_221000.htm).

One-time review of existing plant and substation sites to determine which ones fall under PRC-005-3	937 (GOs and TOs)[56]	2	1,874	**$136,802**
One-time review and adjustment of existing program	288 (subset of GOs and TOs)	8	2,304	**$168,192**

Title: FERC-725P, Mandatory Reliability Standards: Reliability Standard PRC-005-3.

Action: Proposed Collection of Information.

OMB Control No: 1902-0269.

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

Frequency of Responses: One time.

Necessity of the Information: The proposed Reliability Standard PRC-005-3, if adopted, would implement the Congressional mandate of the Energy Policy Act of 2005 to develop mandatory and enforceable Reliability Standards to better ensure the reliability of the nation's Bulk-Power System. Specifically, the proposal would ensure that transmission and generation protection systems affecting the reliability of the bulk electric system are maintained and tested.

42. Internal review: The Commission has reviewed revised Reliability Standard PRC-005-3 and made a determination that approval of this standard is necessary to implement section 215 of the FPA. The Commission has assured itself, by means of its internal

[56] Based on the NERC Compliance Registry as of May 28, 2014.

review, that there is specific, objective support for the burden estimates associated with the information requirements.

43. 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, e-mail: DataClearance@ferc.gov, phone: (202) 502-8663, fax: (202) 273-0873].

44. Comments concerning the information collections proposed in this NOPR 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 e-mail to OMB at the following e-mail address: oira_submission@omb.eop.gov. Please reference the docket number of this Notice of Proposed Rulemaking (Docket No. RM14-8-000) in your submission.

IV. Regulatory Flexibility Act Analysis

45. The Regulatory Flexibility Act of 1980 (RFA)[57] generally requires a description and analysis of Proposed Rules that will have significant economic impact on a substantial number of small entities. The Small Business Administration's (SBA) Office of Size Standards develops the numerical definition of a small business.[58] The SBA

[57] 5 U.S.C. 601-12.

[58] 13 CFR 121.101 (2013).

recently revised its size standard for electric utilities (effective January 22, 2014) to a standard based on the number of employees, including affiliates (from a standard based on megawatt hours).[59] Under SBA's new size standards, generator owners and transmission owners are likely included in one of the following categories (with the associated size thresholds noted for each):[60]

- Hydroelectric power generation, at 500 employees
- Fossil fuel electric power generation, at 750 employees
- Nuclear electric power generation, at 750 employees
- Other electric power generation (e.g., solar, wind, geothermal, biomass, and other), at 250 employees
- Electric bulk power transmission and control, at 500 employees

46. Based on U.S. economic census data,[61] the approximate percentages of small firms in these categories vary from 24 percent to 84 percent. However, currently FERC does not have information on how the economic census data compare with the specific entities affected by this proposed rule using the new SBA definitions.[62] Regardless, FERC

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[59] SBA Final Rule on "Small Business Size Standards: Utilities," 78 FR 77343 (Dec. 23, 2013).

[60] 13 CFR 121.201, Sector 22, Utilities.

[61] Data and further information are available from SBA at http://www.sba.gov/advocacy/849/12162.

[62] For utilities in the SBA's subsector 221, the previous SBA definition stated that "[a] firm is small if, including its affiliates, it is primarily engaged in the generation,

(continued…)

recognizes that the rule will likely impact some small entities and estimates the economic impact below.

47. As discussed above, proposed Reliability Standard PRC-005-3 would apply to 144 generating plant sites and 144 sub-stations that are located within 10 miles of the plant site. In addition, we estimate that all GOs and TOs will initially review plant and substation sites to determine applicability with the proposed standard.

48. On average, each small entity affected may have a one-time cost of $730 per site, representing a one-time review of the program for each entity, consisting of 10 man-hours at $73/hour as explained above in the information collection statement. We do not consider this cost to be a significant economic impact for small entities. Accordingly, the Commission certifies that proposed Reliability Standard PRC-005-3 will not have a significant economic impact on a substantial number of small entities. The Commission seeks comment on this certification.

V. Environmental Analysis

49. 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.[63] The Commission has categorically excluded certain actions

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transmission, and/or distribution of electric energy for sale and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours."

[63] *Regulations Implementing the National Environmental Policy Act of 1969*, Order No. 486, FERC Stats. & Regs. ¶ 30,783 (1987).

from this requirement as not having a significant effect on the human environment. Included in the exclusion are rules that are clarifying, corrective, or procedural or that do not substantially change the effect of the regulations being amended.[64] The actions proposed herein fall within this categorical exclusion in the Commission's regulations.

VI. Comment Procedures

50. 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 [**INSERT DATE 60 days after publication in the FEDERAL REGISTER**]. Comments must refer to Docket No. RM14-8-000, and must include the commenter's name, the organization they represent, if applicable, and address.

51. 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.

52. 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.

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[64] 18 CFR 380.4(a)(2)(ii).

53. 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

54. 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.

55. 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 excluding the last three digits of this document in the docket number field.

56. User assistance is available for eLibrary and the Commission's website 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. E-mail the Public Reference Room at public.referenceroom@ferc.gov.

By direction of the Commission.

Issued: July 17, 2014

Nathaniel J. Davis, Sr.,
Deputy Secretary.

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