AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Federal Energy Regulatory Commission proposes to approve Reliability Standard PRC-026-1 (Relay Performance During Stable Power Swings), submitted by the North American Electric Reliability Corporation. The proposed Reliability Standard is designed to ensure that applicable entities use protective relay systems that can differentiate between faults and stable power swings. In addition, the Commission requests comment regarding the potential burden of modifying the applicability of proposed Reliability Standard PRC-026-1 to include relays with a time delay of 15 cycles or greater in instances where either (1) an element has been identified by a Planning Coordinator as potentially susceptible to power swings or (2) an entity becomes aware of a bulk electric system element that tripped in response to a stable or unstable power swing due to the operation of its protective relay(s), even if the element was not previously identified by the planning coordinator.

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:
NOTICE OF PROPOSED RULEMAKING

(Issued September 17, 2015)

1. Pursuant to section 215 of the Federal Power Act (FPA), the Commission proposes to approve Reliability Standard PRC-026-1 (Relay Performance During Stable Power Swings), submitted by the North American Electric Reliability Corporation (NERC), the Commission-approved Electric Reliability Organization (ERO). The proposed Reliability Standard applies to planning coordinators, as well as generator owners and transmission owners that apply certain load-responsive protective relays in specific, identified circumstances, and is designed to ensure the use of protective relay systems that can differentiate between faults and stable power swings. In addition, the Commission proposes to approve NERC’s proposed implementation plan, and the assigned violation risk factors and violation severity levels.

2. Consistent with directives issued in Order No. 733, the Commission proposes to find that the proposed Reliability Standard addresses undesirable relay operation due to

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power swings,\(^3\) and provides an equally effective and efficient alternative to the Order No. 733 directive requiring the use of protective relay systems that can differentiate between faults and stable power swings and, when necessary, retirement of protective relay systems that cannot meet this requirement.\(^4\) Further, as discussed below, the Commission seeks comment regarding the potential burden of modifying the applicability of proposed Reliability Standard PRC-026-1 to include relays with a time delay of 15 cycles or greater in instances where either (1) an element has been identified by a Planning Coordinator as potentially susceptible to power swings or (2) an entity becomes aware of a bulk electric system element that tripped in response to a stable or unstable power swing due to the operation of its protective relay(s), even if the element was not previously identified by the planning coordinator. Depending on the response, the Commission may direct that NERC develop modifications to the proposed Reliability Standard.

I. **Background**

A. **Mandatory Reliability Standards and Order No. 733 Directives**

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

\(^3\) Order No. 733, 130 FERC ¶ 61,221 at P 153.

\(^4\) *Id.* P 150.
Pursuant to section 215 of the FPA, the Commission established a process to select and certify an ERO, and subsequently certified NERC.

4. On March 18, 2010, in Order No. 733, the Commission approved Reliability Standard PRC-023-1 (Transmission Relay Loadability) and directed NERC to develop a new Reliability Standard that requires the use of protective relay systems that can differentiate between faults and stable power swings and, when necessary, retirement of protective relay systems that cannot meet this requirement. In Order No. 733, the Commission cited the findings of both NERC and the U.S.-Canada Power System Outage Task Force on the causes of the 2003 Northeast Blackout, explaining that the cascade during this event was accelerated by zone 2 and zone 3 relays that continued to operate because these devices could not distinguish between a dynamic, but stable, power swing and an actual fault. The Commission recognized that addressing stable power swings is a complex issue which impacted the 2003 Blackout, and yet there was no Reliability

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5 16 U.S.C. 824(d) and (e).


8 Order No. 733, 130 FERC ¶ 61,221 at P 150.

Standard that addresses the issue; therefore, the Commission directed NERC to develop a Reliability Standard to address undesirable relay operation due to stable power swings.\(^{10}\)

5. On February 17, 2011, in Order No. 733-A, the Commission denied rehearing of Order No. 733 and clarified that “[w]e continue to believe that not addressing stable power swings constitutes a gap in the current Reliability Standards and must be addressed.”\(^{11}\) Therefore, the Commission affirmed the directive that NERC develop a Reliability Standard addressing stable power swings.\(^{12}\) The Commission also clarified that it did not require a Reliability Standard containing an absolute obligation to prevent protection relays from operating unnecessarily during stable power swings or an across-the-board elimination of all zone 3 relays, but only the development of a standard that addresses protection systems that are vulnerable to stable power swings (resulting from Category B and Category C contingencies from the NERC Planning Standards in place at that time) that will result in inappropriate tripping.\(^{13}\) In Order No. 733-B, the Commission denied further clarification regarding the issue.

**B. NERC Petition and Proposed Standard PRC-026-1**

6. On December 31, 2014, NERC submitted a petition seeking approval of proposed Reliability Standard PRC-026-1, as well as the associated implementation plan, and

\(^{10}\) *Id.* P 153.

\(^{11}\) *Order No. 733-A*, 134 FERC ¶ 61,127 at P 104.

\(^{12}\) *Id.*

\(^{13}\) *Id.* P 107.
violation risk factors and violation severity levels. NERC avers that proposed Reliability Standard PRC-026-1 satisfies the Order No. 733 directive to develop a new standard that requires the use of protective relay systems that can differentiate between faults and stable power swings. According to NERC, the proposed Reliability Standard sets forth requirements that prevent the unnecessary tripping of bulk electric system elements in response to stable power swings. NERC further explains that the identification of bulk electric system elements with protection systems at-risk of operating as a result of a stable or unstable power swing and subsequent review by the applicable generator owner or transmission owner “provides assurance that relays will continue to be secure for stable power swings if any changes in system impedance occur.”

7. According to NERC, the proposed Reliability Standard is “directly responsive” to the Order No. 733 directive that NERC develop a standard addressing undesirable relay operation due to stable power swings. NERC explains, however, that the proposed Reliability Standard “includes an alternative to the Commission’s approach to require the use of protective relay systems that can differentiate between faults and stable power

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15 See NERC Petition at 4.

16 Id.

17 Id. at 23 (citing Order No. 733, 130 FERC ¶ 61,221 at P 153).
swings and, when necessary, phases out protective relay systems that cannot meet this requirement.’”18 NERC notes that in Order No. 733-A, the Commission clarified that it had not intended “to prohibit NERC from exercising its technical expertise to develop a solution to an identified reliability concern that is equally effective and efficient as the one proposed in Order No. 733.”19 In support of its alternative solution, NERC states that “it is generally preferable to emphasize dependability over security when it is not possible to ensure both for all possible system conditions” and avers that “[p]rohibiting use of certain types of relays, such as those protective relay systems that cannot differentiate between faults and stable power swings, may have unintended negative outcomes for Bulk-Power System reliability.”20

8. Proposed Reliability Standard PRC-026-1 has four requirements and two attachments. NERC explains that Attachment A “provides clarity on which load-responsive protective relay functions are applicable” under the standard.21 Specifically, Attachment A provides that proposed Reliability Standard PRC-026-1 applies to:

any protective functions which could trip instantaneously or with a time delay of less than 15 cycles on load current (i.e., “load-responsive”) ....

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18 Id. (quoting Order No. 733, 130 FERC ¶ 61,221 at P 162).
19 Id. at 11 (citing Order No. 733-A, 134 FERC ¶ 61,127 at P 11).
20 Id. at 24.
21 Id. at 31.
According to NERC, the 15 cycle time delay “is representative of an expected power swing having a slow slip rate of 0.67 Hertz (Hz) and is the average time that a stable power swing with that slip rate would enter the relays’ characteristic, reverse direction, and then exit the characteristic before the time delay expired.”\textsuperscript{22} NERC states that the proposed standard does not apply to “functions that are either immune to power swings, block power swings, or prevent non-immune protection function operation due to supervision of the function.”\textsuperscript{23} Attachment B contains the criteria for the evaluation of load-responsive protective relays that are within the scope of proposed Reliability Standard PRC-026-1.\textsuperscript{24} According to NERC, Attachment B “will reduce the need for simulation by comparing the load-responsive protective relay to specific criteria” set forth in Attachment B.\textsuperscript{25}

9. According to NERC, Requirement R1 of the proposed Reliability Standard requires the planning coordinator to identify bulk electric system elements that meet one or more of four criteria and subsequently notify, at least once each calendar year, the respective generator owners and transmission owners of the identified at-risk elements.\textsuperscript{26}

10. NERC states that, upon such notification, Requirement R2 obligates the generator owners and transmission owners to determine whether the relays applied to the identified

\textsuperscript{22} Id. at 30.
\textsuperscript{23} Id. at 31.
\textsuperscript{24} See id. at 35-38.
\textsuperscript{25} Proposed Reliability Standard PRC-026-1 (Application Guidelines) at 15.
\textsuperscript{26} Id. at 32-33.
bulk electric system elements meet the two criteria outlined in Attachment B to proposed Reliability Standard PRC-026-1. NERC notes that Requirement R2 requires a generator owner or transmission owner to conduct the same analysis where the entity becomes aware of a bulk electric system element that tripped in response to a stable or unstable power swing due to the operations of its protective relay(s), even if the element was not previously identified by the planning coordinator. NERC concludes that, based on the “expected infrequency of Elements tripping in response to a stable power swing,” the evaluation of elements identified under Requirement R1 combined with the evaluation of elements identified following a known power swing trip “meet[s] the reliability purpose of the proposed Reliability Standard and directive in an efficient manner without significant burden to applicable entities.”

NERC explains that Requirement R3 requires an applicable generator owner or transmission owner to develop a corrective action plan for any protective system that does not meet the Attachment B criteria. Under the corrective action plan, a generator owner or transmission owner is required to modify the relevant protection system to meet the Attachment B criteria. Requirement R4 obligates a generator owner or transmission owner to implement a corrective action plan developed under Requirement R3 and to

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27 NERC Petition at 38. NERC explains that the phrase “becoming aware” is used in Requirement R2 to “not overburden entities by requiring a determination of whether a power swing was present for every Element trip” due to relay operation. Id.

28 Id. at 38-39.
update the plan when either the content of the plan or associated timetables change until
the plan has been fully executed.

12. NERC proposes an implementation plan for PRC-026-1 under which Requirement
R1 is to become effective 12 months after Commission approval, and Requirements R2,
R3, and R4 become effective 36 months after Commission approval.

II. Discussion

13. Pursuant to section 215(d)(2) of the FPA, we propose to approve Reliability
Standard PRC-026-1 as just, reasonable, not unduly discriminatory or preferential, and in
the public interest. We also propose to approve NERC’s proposed implementation plan,
and the proposed violation risk factors and violation severity levels. Generally, the
proposed Reliability Standard appears to adequately address the Commission’s directive
from Order No. 733 by helping to prevent the unnecessary tripping of bulk electric
system elements in response to stable power swings. We propose to accept NERC’s
approach as an equally effective and efficient method to achieve the reliability goal
underlying the Commission’s Order No. 733 directive.

14. However, we are concerned that NERC’s proposed exclusion of load responsive
relays with a time delay of 15 cycles or greater as proposed in Attachment A could result
in a gap in reliability. As mentioned above, pursuant to Attachment A, the Reliability
Standard applies to “any protective functions which could trip instantaneously or with a
time delay of less than 15 cycles on load current (i.e., “load-responsive”)….” NERC
provides technical rationale for the less than 15 cycle threshold, explaining that load-
responsive relays set to trip instantaneously or with a “slight time delay” are most
susceptible to power swings. Nevertheless, while NERC states that its proposal meets the Commission’s directive in an efficient manner without significant burden to applicable entities, NERC has not provided any information on the burden of including relays with a time delay of 15 cycles or greater under proposed Reliability Standard PRC-026-1. We believe that the lack of this information is significant in light of the fact that an entity would not be required under the proposed Reliability Standard to investigate an element identified by a Planning Coordinator as potentially susceptible to power swings or investigate an element following a known power swing trip if the relay(s) involved have a time delay of 15 cycles or greater.

Therefore, we seek comment on the potential burden of modifying the applicability of proposed Reliability Standard PRC-026-1 to include relays with a time delay of 15 cycles or greater in instances where either (1) an element has been identified by a Planning Coordinator as potentially susceptible to power swings or (2) an entity becomes aware of a bulk electric system element that tripped in response to a stable or unstable power swing due to the operation of its protective relay(s), even if the element was not previously identified by the planning coordinator. Depending on the response, the Commission may direct that NERC develop modifications to the proposed Reliability Standard.

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29 See NERC Petition at 29-30.
III. Information Collection Statement

16. The collection of information contained in this Notice of Proposed Rulemaking is subject to review by the Office of Management and Budget (OMB) regulations under section 3507(d) of the Paperwork Reduction Act of 1995 (PRA). OMB’s regulations require approval of certain informational collection requirements imposed by agency rules.

17. 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.

18. We solicit comments on the need for this information, whether the information will have practical utility, the accuracy of the burden estimates, ways to enhance the quality, utility, and clarity of the information to be collected or retained, and any suggested methods for minimizing respondents’ burden, including the use of automated information techniques. 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.

Public Reporting Burden: The Commission proposes to approve Reliability Standard PRC-026-1. Proposed Reliability Standard PRC-026-1 will impose new requirements for

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31 5 C.F.R. 1320.11.
the notification of particular bulk electric system elements from planning coordinator to
generator owners and transmissions owners based on given criteria. Generator owners
and transmissions owner will evaluate those bulk electric system elements and load-
responsive protective relay(s) according to Attachment B criteria and, if a load-
responsive protective relay does not meet the Attachment B criteria, the generator
owner/transmission owner must develop a corrective action plan. Our estimate below
regarding the number of respondents is based on the NERC Compliance Registry as of
June 26, 2015. According to the NERC Compliance Registry, NERC has registered 318
transmission owners, 884 generator owners, and 68 planning coordinators. However,
under NERC’s compliance registration program, entities may be registered for multiple
functions, so these numbers incorporate some double counting. The total number of
unique entities that may be identified as a notification provider (e.g. applicable entity) in
accordance with proposed Reliability Standard PRC-026-1 will be approximately 1,074
entities registered in the United States as a transmission owner and/or generator owner.
The total number of unique entities that may be identified as evidence retention entities
(e.g. applicable entity) in accordance with proposed Reliability Standard PRC-026-1 will
be approximately 1,092 entities registered in the United States as a transmission owner,
generator owner and/or planning coordinator. The Commission estimates the annual
reporting burden and cost as follows:
Title: FERC-725G3, Mandatory Reliability Standards: Reliability Standard PRC-026-1.

Action: Proposed Collection of Information.

OMB Control No: To Be Determined.

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

Frequency of Responses: One time and on-going.

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The estimates for cost per response are derived using the following formula:

Average Burden Hours per Response * $60.66 per Hour = Average Cost per Response. The hourly average of $60.66 assumes equal time is spent by the manager, electrical engineer, and information and record clerk. The average hourly cost (salary plus benefits) is: $37.50 for information and record clerks (occupation code 43-4199), $78.04 for a manager (occupation code 11-0000), and $66.45 for an electrical engineer (occupation code 17-2071). (The figures are taken from the Bureau of Labor Statistics, May 2014 figures at http://www.bls.gov/oes/current/naics2_22.htm).

The average hourly cost (salary plus benefits) is $37.50. The BLS wage category code is 34-4199. This figure is also taken from the Bureau of Labor Statistics, May 2014 figures at http://www.bls.gov/oes/current/naics2_22.htm.

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<th>Average Burden &amp; Cost Per Response (4)</th>
<th>Total Annual Burden Hours &amp; Total Annual Cost (3)*(4)=(5)</th>
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Necessity of the Information: The proposed Reliability Standard PRC-026-1, 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 address undesirable relay operation due to power swings.

19. Internal review: The Commission has reviewed the requirements pertaining to the proposed Reliability Standard PRC-026-1 and made a determination that the proposed requirements of this standard are necessary to implement section 215 of the FPA. These requirements conform to the Commission’s plan for efficient information collection, communication and management within the energy industry. 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.

20. 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].

21. 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. RM15-8-000) in your submission.

**IV. Regulatory Flexibility Act Analysis**

22. The Regulatory Flexibility Act of 1980 (RFA)\(^{34}\) generally requires a description and analysis of this NOPR that will have significant economic impact on a substantial number of small entities. Proposed Reliability Standard PRC-026-1 sets forth requirements that prevent the unnecessary tripping of bulk electric system elements in response to stable power swings. As shown in the information collection section, an estimated 1,092 entities are expected to evaluate bulk electric system elements and load-responsive protective relay(s) according to Attachment B criteria of proposed PRC-026-1. Comparison of the applicable entities with the Commission’s small business data indicates that approximately 661 are small entities\(^{35}\) or 60.53 percent of the respondents affected by proposed Reliability Standard PRC-026-1.

23. As discussed above, proposed Reliability Standard PRC-026-1 will serve to enhance reliability by imposing mandatory requirements governing generator relay loadability, thereby reducing the likelihood of premature or unnecessary tripping of

\(^{34}\) 5 U.S.C. 601-12.

\(^{35}\) The Small Business Administration sets the threshold for what constitutes a small business. Public utilities may fall under one of several different categories, each with a size threshold based on the company’s number of employees, including affiliates, the parent company, and subsidiaries. For the analysis in this NOPR, we apply a 500 employee threshold for each affected entity. Each entity is classified as Electric Bulk Power Transmission and Control (NAICS code 221121).
generators during system disturbances. The Commission estimates that each of the small entities to whom the proposed Reliability Standard PRC-026-1 applies will incur paperwork and record retention costs of $935.28 per entity (annual ongoing).

24. The Commission does not consider the estimated costs per small entity to have a significant economic impact on a substantial number of small entities. Accordingly, the Commission certifies that proposed Reliability Standard PRC-026-1 will not have a significant economic impact on a substantial number of small entities. The Commission seeks comment on this certification.

V. **Environmental Analysis**

25. 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.\(^{36}\) The Commission has categorically excluded certain actions 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.\(^{37}\) The actions proposed herein fall within this categorical exclusion in the Commission’s regulations.

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VI. Comment Procedures

26. 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. RM15-8-000, and must include the commenter's name, the organization they represent, if applicable, and address.

27. 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.

28. 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.

29. 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**

30. 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.

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

32. 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.

( S E A L )

Nathaniel J. Davis, Sr.,
Deputy Secretary.