Supporting Statement FERC-725P, Mandatory Reliability Standards: Reliability Standard PRC-005-3 (Protection System Maintenance Reliability Standard), Notice of Proposed Rulemaking in RM14-8-000

In Docket RM14-8 the Federal Energy Regulatory Commission (the Commission or FERC) proposes to approve a revised Reliability Standard, PRC-005-3 (Protection System and Automatic Reclosing Maintenance). Consistent with Commission 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.

Some of the underlying existing information collection requirements in the proposed Reliability Standard (PRC-005-3) are approved by OMB under FERC-725A (OMB Control No.1902-0244).

We are submitting this proposed rule under the FERC-725P, which contains information requirements approved in Commission Order No. 793.¹ As part of the last approval of the FERC-725P collection (ICR# 201312-1902-004, February 27, 2014), the Office of Management and Budget (OMB) included terms of clearance regarding record retention. We address OMB's terms of clearance in item #7 below.

1. CIRCUMSTANCES THAT MAKE THE COLLECTION OF INFORMATION NECESSARY

On August 8, 2005, The Electricity Modernization Act of 2005, which is Title XII of the Energy Policy Act of 2005 (EPAct 2005), was enacted into law.² EPAct 2005 added a new section 215 to the Federal Power Act (FPA), which requires a Commission-certified Electric Reliability Organization (ERO) to develop mandatory and enforceable Reliability Standards, which are subject to Commission review and approval. Once approved, the Reliability Standards must be enforced by the ERO, subject to Commission oversight. In 2006, the Commission certified the North American Electric Reliability Corporation (NERC) as the ERO pursuant to FPA section 215.³

On March 16, 2007, in Order No. 693, pursuant to section 215(d) of the FPA, the Commission approved 83 of 107 proposed Reliability Standards, six of the eight proposed regional differences, and the NERC *Glossary of Terms Used in Reliability Standards* (NERC Glossary), including initial versions of four protection system and load-shedding-related maintenance standards, *i.e.*, PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0.⁴

¹ Protection System Maintenance Reliability Standard, Order No. 793, 145 FERC ¶ 61,023 (2013).

² The Energy Policy Act of 2005, Pub. L. No 109-58, Title XII, Subtitle A, 119 Stat. 594, 941 (2005), codified at 16 U.S.C. 8240 (2000).

³ 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).

⁴ Order No. 693, FERC Stats. & Regs. ¶ 31,242 at PP 1474, 1492, 1497, and 1514.

In approving these protection system-related Reliability Standards, the Commission directed NERC to develop or to consider a number of modifications. Specifically, the Commission directed NERC to (1) develop a revision to PRC-005-1 incorporating a maximum time interval during which to conduct maintenance and testing of protection systems, and (2) 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.⁵

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 the 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 relays⁶ that may affect the reliability of the Bulk-Power System.⁷

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 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.

7 The approved interpretation stated:

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.

⁵ In Order No 763, the Commission approved Reliability Standard PRC-006-1 pertaining to "underfrequency load shedding" which also encompasses "undervoltage load shedding." *Automatic Underfrequency Load Shedding and Load Shedding Plans Reliability Standards*, Order No. 763, 139 FERC ¶ 61, 098 (2012).

⁶ NERC's petition (at 9) states, "Reclosing relays are utilized on transmission systems to restore transmission elements to service following automatic circuit breaker tripping".

Request R3: Does R1 require maintenance and testing of transmission line reclosing relays?

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.

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

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 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

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 maintained 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 explained 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

2. HOW, BY WHOM, AND FOR WHAT PURPOSE THE INFORMATION IS TO BE USED AND THE CONSEQUENCES OF NOT COLLECTING THE INFORMATION

Proposed Reliability Standard PRC-005-3 applies to entities registered with NERC as distribution providers (DP), generation owners (GO), and transmission owners (TO). However,

(2013).

11 *Id.* P 2.12 *See* NERC Petition at 2, 7.13 *Id.* at 8.

⁹ Id. PP 23-24 (footnotes excluded).

¹⁰ Protection System Maintenance Reliability Standard, Order No. 793, 145 FERC ¶ 61,253

the changes to the standard as compared to the one previously approved only affect TOs and GOs.

Reclosing relays are utilized on transmission systems to restore transmission elements to service following automatic circuit breaker tripping. There are several types of reclosing relays, including electromechanical, solid state, and microprocessor-based, which may be applied in a variety of scenarios. Most reclosing relays share three main functions: supervisory, timing, and output. According to NERC, a relay failure is most likely to occur as part of one of these functions. Reclosing relays are typically installed to lessen the burden on transmission operators of manually restoring transmission lines. Relays of this type also provide improved capability in restoration of overhead transmission lines. The degree to which such capability is improved depends on the nature of the fault—permanent or temporary—and on transmission operator practices regarding manual restoration.

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. Because certain applications of reclosing relays can have the potential to impact the Bulk-Power System, it is beneficial to reliability that those relays be included under the applicability of proposed Reliability Standard PRC-005-3.

Proposed Reliability Standard PRC-005-3 will require all GOs and TOs to perform a one-time review of existing plant substation sites to determine if they have reclosing relays that meet the inclusion criteria of the standard. If a GO or TO has sites or subsites with reclosing relays that meet the inclusion criteria then they have to review their existing reclosing scheme maintenance program to ensure that it contains at a minimum the maintenance 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.

The new information collection requirements in PRC-005-3 help to ensure that protection systems are well maintained and tested. Without these new requirements there is an increased chance of protection systems not functioning properly.

3. DESCRIBE ANY CONSIDERATION OF THE USE OF IMPROVED INFORMATION TECHNOLOGY TO REDUCE THE BURDEN AND TECHNICAL OR LEGAL OBSTACLES TO REDUCING BURDEN

How entities use information technology to meet the information collection requirements is not an area specifically covered in the Reliability Standards.

In general, the Commission supports the use of information technology to reduce burden.

4. DESCRIBE EFFORTS TO IDENTIFY DUPLICATION AND SHOW SPECIFICALLY WHY ANY SIMILAR INFORMATION ALREADY AVAILABLE CANNOT BE USED OR MODIFIED FOR USE FOR THE PURPOSE(S) DESCRIBED IN INSTRUCTION NO. 2

The Commission periodically reviews filing requirements concurrent with OMB review or as the Commission deems necessary to eliminate duplicative filing and to minimize the filing burden.

The information collection requirements are unique to this reliability standard and to this information collection. The Commission does not know of any duplication in the requirements.

5. METHODS USED TO MINIMIZE THE BURDEN IN COLLECTION OF INFORMATION INVOLVING SMALL ENTITIES

Small entities subject to a given Reliability Standard generally can reduce their burden by taking part in a joint registration organization or a coordinated function registration. These options allow an entity to share its compliance burden with other similar entities.

Detailed information regarding these options are available in NERC's Rules of Procedure at sections 507 and 508.¹⁴

In this case, the proposed changes are estimated to cost small entities approximately \$730, which we consider to be minimal.¹⁵

6. CONSEQUENCE TO FEDERAL PROGRAM IF COLLECTION WERE CONDUCTED LESS FREQUENTLY

The additional burden proposed by the rule is one-time only and cannot be done less frequently. The record retention requirements are either existing requirements or considered usual business practice and are not modified by this rulemaking.

7. EXPLAIN ANY SPECIAL CIRCUMSTANCES RELATING TO THE INFORMATION COLLECTION

There are no special circumstances related to the information collection requirements proposed in the rulemaking.

However, the existing and/or usual and customary record retention requirements in the Reliability Standard do exceed the maximum record retention interval as described in 5 CFR 1320.5(d)(2).

14 Available at

http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/NERC_ROP_Effective_20140701_updated_20140602.pdf.

¹⁵ This cost is based on 10 hours per entity at 73/hour. See item #15 in this document for more information.

The proposed Reliability Standard puts in place minimum maintenance activities and maximum equipment test intervals (up to 12 years) and a mechanism to use performance based maintenance to more conclusively adjust maintenance intervals.¹⁶ The Reliability Standard states the following about data retention:

For Requirement R2, Requirement R3, Requirement R4, and Requirement R5, the Transmission Owner, Generator Owner, and Distribution Provider shall each keep documentation of the two most recent performances of each distinct maintenance activity for the Protection System or Automatic Reclosing Component, or all performances of each distinct maintenance activity for the Protection System or Automatic Reclosing Component since the previous scheduled audit date, whichever is longer.

Based on the above, entities may have to retain some documentation for as long as 24 years, which is significantly longer than the 3-year maximum period OMB stipulates.

Recognizing OMB's requirements, NERC provides the following explanation about the maintenance intervals in the proposed standard:¹⁷

Proposed PRC-005-3 continues to require entities to maintain documentation for the longer of: (1) the two most recent performances of each distinct maintenance activity for the Protection System or Automatic Reclosing Component; (2) all performances of each distinct maintenance activity for the Protection System or Automatic reclosing Component since the previous scheduled audit date. The Standard Drafting Team explains that this requirement assures that documentation is available to show that the time between maintenance cycles correctly meets the maintenance interval limits. Maintaining elements according to these intervals is a critical aspect of properly maintaining a covered Component. Because some maintenance intervals in proposed PRC-005-3 (and the predecessor Reliability Standard PRC-005-2) are up to twelve years, it is possible that an entity may need to retain records for up to twenty-four years.

The evidence retention periods in proposed Reliability Standard PRC-005-3 continue to be reasonable for this type of activity. The type of evidence entities will retain to demonstrate that maintenance was last completed within a given interval are the usual and customary documents maintained by these entities today to document maintenance internally of various components. While the time intervals may seem longer than an entity may reasonably retain such records, the lengthy periods are necessary to establish maintenance has occurred according to the mandated intervals. Retaining records for the two most recent performances of each distinct maintenance activity, where the interval is twelve years, is how

¹⁶ NERC Petition at Exhibit F.

¹⁷ NERC Petition at 25-26. Footnotes excluded.

> the twenty-four year retention period arises. Shortening the time period for retention would require that the maintenance intervals be reduced as well, which would significantly increase capital maintenance costs since entities would need to maintain Components under tighter time constraints.

The Measures in the proposed Reliability Standard provide examples of acceptable types of evidence for each Requirement, but the Measures do not mandate specific records be kept. Therefore, entities will have the flexibility to determine the level of documentation needed to verify this limited element of the proposed Reliability Standard. Generally, entities will likely only maintain summaries of their maintenance activities pertaining to the prior period in order to establish that the proper intervals were met. Therefore, the burden will be minimal compared to the increased capital costs that would result from shortening the intervals to create a shorter maximum retention time.

Recognizing that the period is long, NERC has requested that the Standard Drafting Team consider possible alternatives or refinements to the evidence retention periods in the PRC-005 Reliability Standard for all covered Component Types as part of NERC Project 2007-17.3 – Protection System Maintenance and Testing (Sudden Pressure Relays).

In response to OMB's current terms of clearance for this collection (ICR# 201312-1902-004, February 27, 2014), FERC included the following in the proposed rule:¹⁸

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

8. DESCRIBE EFFORTS TO CONSULT OUTSIDE THE AGENCY: SUMMARIZE PUBLIC COMMENTS AND THE AGENCY'S RESPONSE

¹⁸ See the proposed rule document at P 36.

The ERO process to establish Reliability Standards is a collaborative process with the ERO, Regional Entities and other stakeholders developing and reviewing drafts, and providing comments, with the final proposed standard submitted to the FERC for review and approval.¹⁹ In addition, each FERC rulemaking (both proposed and final rules) is published in the <u>Federal</u> <u>Register</u>, thereby providing public utilities and licensees, state commissions, Federal agencies, and other interested parties an opportunity to submit data, views, comments or suggestions concerning the proposed collection of data. The proposed rule was published in the Federal Register on July 29, 2014 (79 FR 43987).

9. EXPLAIN ANY PAYMENT OR GIFTS TO RESPONDENTS

The Commission does not make payments or provide gifts for respondents related to this collection.

10. DESCRIBE ANY ASSURANCE OF CONFIDENTIALITY PROVIDED TO RESPONDENTS

The information collection requirements proposed here do require the entity to submit information. They are documentation and record retention requirements. Responding entities do not submit the information collected or retained to show compliance with the Reliability Standards to FERC. Rather, they submit the information to NERC, the regions, or maintain it internally. Since there are no submissions made to FERC, FERC provides no specific provisions in order to protect confidentiality.

According to the NERC Rule of Procedure section 1502²⁰, "…a Receiving Entity shall keep in confidence and not copy, disclose, or distribute any Confidential Information or any part thereof without the permission of the Submitting Entity, except as otherwise legally required." This serves to protect confidential information submitted to NERC or Regional Entities.

11. PROVIDE ADDITIONAL JUSTIFICATION FOR ANY QUESTIONS OF A SENSITIVE NATURE, SUCH AS SEXUAL BEHAVIOR AND ATTITUDES, RELIGIOUS BELIEFS, AND OTHER MATTERS THAT ARE COMMONLY CONSIDERED PRIVATE.

This collection does not include any questions of a sensitive nature.

12. ESTIMATED BURDEN OF COLLECTION OF INFORMATION

The *existing* burden is due to the Commission's recent approval of Reliability Standard PRC-005-2 and includes a one-time review of current protection system maintenance programs to

¹⁹ Details of the current ERO Reliability Standard processes are available on the NERC website at <u>http://www.nerc.com/pa/Stand/Resources/Documents/Appendix3AStandardsProcessesManual.pdf</u> 20 Section 1502, Paragraph 2, available at NERC's website

⁽http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/NERC_ROP_Effective_20140701_updated _20140602%20(updated).pdf).

ensure that they meet the requirements of the revised standard PRC-005-2. Because it has been less than a year since PRC-005-2 was approved by the Commission and those requirements haven't been completed yet, we are not requesting that the one-time burden be removed at this time. The following table shows the existing burden:

	Number of Affected Entities	Number of PSMP ²¹ Reviewed Per Entity	Average Number of Hours per Review	Total Burden Hours (1)*(2)*(3)	Total Cost
Requirement	(1)	(2)	(3)	=(4)	(4)*\$70 ²²
One time review and					
adjustment of					
existing protection					
system maintenance					
program	867	1	8	6,936	\$485,520

13. ESTIMATE OF THE TOTAL ANNUAL COST BURDEN TO RESPONDENTS

There is no start-up or other non-labor hour cost associated with this rulemaking. We assume that the information collection requirements associated with this rulemaking can be completed by entities using existing hardware and software.

14. ESTIMATED ANNUALIZED COST TO FEDERAL GOVERNMENT

The Regional Entities and NERC do most of the data processing, monitoring and compliance work for Reliability Standards. Any involvement by the Commission is covered under the FERC-725 collection (1902-0225) and is not part of this request or package.

The Commission does incur the costs associated with obtaining OMB clearance under the Paperwork Reduction Act for this Collection. FERC estimates \$5,092 as the annual cost for this effort.²³

15. REASONS FOR CHANGES IN BURDEN INCLUDING THE NEED FOR ANY INCREASE

The change in burden is the result of new provisions related to reclosing relays in the proposed PRC-005-3 Reliability Standard. The increase in burden is necessary so that respondents review and update their protection system maintenance programs according to the new standard.

²¹ PSMP = Protection System Maintenance Program

²² This figure is the average of the salary plus benefits for a manager and an engineer at the time of the last the submittal to OMB. The figures are taken from the Bureau of Labor and Statistics at (http://bls.gov/oes/current/naics3 221000.htm and http://www.bls.gov/news.release/ecec.nr0.htm).

²³ This is based on an estimate of work done by the Information Clearance team and other FERC staff as well as a small non-labor cost related to publishing material in the Federal Register.

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 MWs 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.²⁴ Applying the PJM ratio to this total results in 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 288.²⁵ Finally, we assume that all GOs and TOs must review their existing plant and substation sites to determine applicability under the proposed standard. We estimate that the burden on GOs and TOs to review their existing plant and substation of the two hours are spent by an engineer examining facility data to determine if specific sites meet the applicability of the standard. We assume that the remaining portion of the burden is for a manager to review and sign off on the engineer's analysis.

Entities that do have facilities that meet the applicability of the standard 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. We assume that the work to examine, adjust and get approval for program documentation will require an engineer and a manager a total of eight hours or one whole work day. This estimate is based on Commission staff experience. The record retention requirements are considered usual and customary for this industry.

		Average	Total	
	Number of	Number of	Burden	Total
	Affected	Hours per	Hours	Cost
	Entities	Review	(3)	(5)
Requirement	(1)	(2)	(1)*(2)	(3)*\$73 ²⁶

²⁴ See <u>http://search.usa.gov/search?utf8=%E2%9C%93&affiliate=eia.doe.gov</u> <u>&query=generation+capacity+all+states&search=Submit</u> and <u>http://www.eia.gov/</u> <u>electricity/annual/html/epa_08_07_a.html</u>.

²⁵ This estimate conservatively assumes that the proximate substation would be owned by a different entity than the generating plant.

²⁶ 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 (<u>http://bls.gov/oes/current/naics3_221000.htm</u> and <u>http://www.bls.gov/news.release/ecec.nr0.htm</u>). This differs from the hourly cost figure in #12 because the figure here has been updated to current values.

One-time review of existing plant and substation sites to determine which ones	937 (GOs			
fall under PRC-005-3	and TOs) ²⁷	2	1,874	\$136,802
One-time review and adjustment of existing	288 (subset of GOs and			
program	TOs)	8	2,304	\$168,192

The following table shows the change in burden inventory for the FERC-725P because of the proposed rule.

FERC-725P	Total Request	Previously Approved	Change due to Adjustment in Estimate	Change Due to Agency Discretion
Annual Number of Responses	2,092	867	-	1,225
Annual Time Burden (Hr)	11,114	6,936	-	4,178
Annual Cost Burden (\$)	-	-	-	-

The Commission intends to request a removal of the one-time burdens associated with this collection at the appropriate time.

16. TIME SCHEDULE FOR PUBLICATION OF DATA

There are no data publications as part of this collection

17. DISPLAY OF EXPIRATION DATE

The expiration date is displayed in a table posted on ferc.gov at <u>http://www.ferc.gov/docs-filing/info-collections.asp</u>.

18. EXCEPTIONS TO THE CERTIFICATION STATEMENT

The Commission does not use statistical methods for this collection. Therefore, the Commission does not certify that the collection uses statistical methods.

²⁷ Based on the NERC Compliance Registry as of May 28, 2014.