

Supporting Statement  
**FERC-725P, Mandatory Reliability Standards: Reliability Standard PRC-005-2**  
(Protection System Maintenance Reliability Standard),  
Final Rule in RM13-7-000

In Docket RM13-7 the Commission approves Reliability Standard PRC-005-2, which replaces PRC-005-1.1b (Transmission and Generation Protection System Maintenance and Testing), PRC-008-0 (Underfrequency Load Shedding Equipment Maintenance), PRC-011-0 (Undervoltage Load Shedding Equipment Maintenance) and PRC-017-0 (Special Protection System Maintenance and Testing). The Reliability Standard combines the requirements for maintenance and testing of protection systems, special protection systems, underfrequency load shedding equipment, and undervoltage load shedding equipment into one, comprehensive standard. In addition, the Reliability Standard sets out minimum maintenance activities and maximum maintenance intervals for the various components of these systems, but also allows applicable entities to adopt performance-based maintenance intervals in certain circumstances.

The underlying information collection requirements in the Reliability Standard (PRC-005-2) are approved by OMB under FERC-725A (OMB Control No.1902-0244).

We are submitting this proposed rule under a new collection number and control number because of other rulemakings, currently pending review at OMB, also affecting the FERC-725A collection. This new collection (FERC-725P) will only contain the information collection requirements that are part of the final rule in RM13-7.

**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 (EPAAct 2005), was enacted into law.<sup>1</sup> EPAAct 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.

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 North American Electric Reliability Corporation (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.<sup>2</sup>)

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<sup>1</sup> 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. 824o (2000).

<sup>2</sup> 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.<sup>3</sup>

In a subsequent order, issued in response to NERC's request for approval of its interpretation of PRC-005-1 (Order No. 758), the Commission issued three additional directives, addressing deficiencies in the existing version of Reliability Standard PRC-005.<sup>4</sup> The Commission directed NERC to modify Reliability Standard PRC-005-1, through its standards development process, to (1) identify and include the auxiliary relays and non-electrical sensing devices designed to sense or take action against any abnormal system condition that will affect reliable operation (such as sudden pressure relays); (2) include specific requirements for maintenance and testing of reclosing relays that affect the reliable operation of the bulk-power system; and (3) include specific requirements for maintenance and testing of DC control circuitry.

On February 26, 2013, NERC submitted a petition seeking approval of Reliability Standard PRC-005-2, six new definitions associated with that standard, and a proposed implementation plan that includes retirement of the four currently-effective Reliability Standards that address maintenance and testing of transmission and generation protection systems, UFLS and UVLS equipment, and special protection systems. NERC maintained that the Reliability Standard not only consolidates the four currently-effective standards into a single standard, but also addresses the directives in Order No. 693 related to those standards.<sup>5</sup>

NERC said that the proposed standard will improve reliability by:

- (i) defining and establishing criteria for a Protection System Maintenance Program;
- (ii) reducing the risk of Protection System Misoperations;
- (iii) clearly stating the applicability of the Requirements in proposed PRC-005-2 to certain Functional Entities and Facilities;
- (iv) establishing Requirements for time-based maintenance programs that include maximum allowable maintenance intervals for all relevant devices;

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<sup>3</sup> 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).

<sup>4</sup> *Interpretation of Protection System Reliability Standard*, 138 FERC ¶ 61,094 (2012) (Order No. 758).

<sup>5</sup> NERC Petition at 2. *See also* NERC Petition at 11 where NERC states that while additional directives related to the PRC-005 Reliability Standard were issued by the Commission in a subsequent order, Order No. 758, these directives are being addressed in future projects related to PRC-005.

- and (v) establishing Requirements for condition-based and performance-based maintenance programs where hands-on maintenance intervals are adjusted to reflect the known and reported condition or the historical performance, respectively, of the relevant devices.<sup>6</sup>

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

Reliability Standard PRC-005-2 applies to entities registered with NERC as distribution providers, generation owners, and transmission owners.

Reliability Standard PRC-005-2 includes specific requirements about the minimum maintenance activities required for each type of applicable component as well as a maximum time interval during which the maintenance must be completed. Because NERC designed the specific requirements to reflect common industry practice, entities are not expected to experience a meaningful change in actual maintenance and documentation practices. However, affected entities must perform a one-time review of their existing protection system maintenance program to ensure that it contains at a minimum the activities listed in Tables 1 through 3 in Reliability Standard PRC-005-2 and that the activities are performed within the maximum interval listed in Tables 1 through 3. If the existing protection system maintenance program does not meet the criteria in Reliability Standard PRC-005-2, the entity will have to make certain adjustments to the program.

Protection systems must be maintained and tested at regular intervals to insure they will operate as intended when called upon and that maintenance intervals vary depending on the type and nature of the protection system, as well as the reliability impact of a potential failure of that system. The new information collection requirements in PRC-005-2 help meet the need 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**

The use of current or improved technology is not covered in Reliability Standards and is, therefore, left to the discretion of each reporting entity.

## **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 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.

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

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

The Reliability Standard PRC-005-2 would apply to 867 individual entities (the number of entities registered as a distribution provider, a generator owner, a transmission owner, or any combination of those three functional entities). Comparison of the NERC Compliance Registry (as of June 10, 2013) with data submitted to the Energy Information Administration on Form EIA-861 indicates that, of these entities, 230 may qualify as small entities.<sup>7</sup> Of the 230 small entities, 90 are registered as a combination of distribution providers, generator owners and transmission owners, but it is assumed that each entity would have only one comprehensive program to review.

The Commission estimates that, on average, each of the 230 small entities affected will have a one-time cost of \$560 representing a one-time review of the program for each entity (consisting of 8 man-hours at \$70/hour as explained below in #12).

In general, small entities may reduce their burden by taking part in a joint registration organization or a coordinated functional registration. These options allow an entity to share its compliance burden with other entities.

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

If this standard and the associated information collection requirements were performed less frequently, the reduction in protection system maintenance would likely lead to lower system reliability.

## **7. EXPLAIN ANY SPECIAL CIRCUMSTANCES RELATING TO THE INFORMATION COLLECTION**

There is a special circumstance as described in 5 CFR 1320.5(d)(2) related to record retention.

The Reliability Standard puts in place minimum maintenance activities and maximum equipment test intervals (4 months to 12 years) and a mechanism to use performance-based maintenance to more conclusively adjust maintenance intervals.<sup>8</sup> The Reliability Standard states the following about data retention:

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<sup>7</sup> The RFA definition of “small entity” refers to the definition provided in the Small Business Act (SBA), which defines a “small business concern” as a business that is independently owned and operated and that is not dominant in its field of operation. See 15 U.S.C. 632 (2006). According to the Small Business Administration, an electric utility is defined as “small” if, including its affiliates, it is primarily engaged in the generation, 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.

<sup>8</sup> NERC Petition at Exhibit F.

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 Component, or all performances of each distinct maintenance activity for the Protection System 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.

NERC explains in its petition (Exhibit F) its justification for the test/maintenance intervals:

The PRC-005-2 Standard Drafting Team based its maximum test interval recommendations for the various classes of protective relays in the System Protection and Control Task Force (SPCTF) white paper "Protection System Maintenance" dated September 13, 2007 and on the collective experience from the entities on the drafting team. The SPCTF recommended a 5 year interval for BES unmonitored electromechanical relays but allowed some grace periods for extenuating conditions. The PRC-005-2 drafting team modified the interval to 6 years to align with power plant outage scheduling without any grace period. The maintenance intervals proposed by the PRC-005-2 drafting team are not significantly different than industry averages when grace periods and outage scheduling are considered.

The drafting team incorporated the ability of new technologies to allow the industry to significantly extend the maintenance intervals by utilizing the monitoring capability of microprocessor based components. When proper monitoring is applied, the protective system maintenance personnel will be notified immediately when a protective relay or instrument transformer fails. PRC005-2 allows a 12 year interval on relays that are properly monitored since these devices will alarm for a failure when they have a problem as opposed to unmonitored relays experiencing an unidentified failure. Advanced monitoring techniques also allow other equipment intervals to be extended as detailed in the tables in the standard. The entities will have to document the applied monitoring techniques to utilize the longer test intervals. The drafting team believes that the application of new monitoring techniques (even with the longer test intervals) will provide better reliability than strictly time-based intervals used in the past.

The fact that the standard allows for such a lengthy test/maintenance interval should actually serve to lessen the compliance burden on entities than if the interval was shorter. The accompanying data retention requirement is simply to ensure that an entity is following the appropriate test/maintenance schedule. FERC has submitted a justification for "substantial need" as a supplemental document to this collection.

For other requirements in the Reliability Standard, some entities may have to retain information for longer than three years. This is simply because an audit (normally every three years) may be scheduled such that the period since the last audit is slightly longer than three years.

This special circumstance is necessary for the audit program which supports the reliable operation of the bulk power system.

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

The ERO process to establish Reliability Standards is a collaborative process with the ERO, Regional Entities and other stakeholders. This process involves developing and reviewing drafts, providing comments with the final proposed standard submitted to the FERC for review and approval.<sup>9</sup> In addition, each FERC rulemaking (both proposed and final rules) is published in the Federal Register, 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 24, 2013 (78 FR 44475).

In response to the proposed rule the Commission received seven sets of comments. No commenters discussed the information collection requirements or burden estimates.

Most commenters generally support the Commission's proposed approval of PRC-005-2. ITC "supports NERC's proposal as improving Bulk Electric System reliability and promoting efficiency through consolidation [of protection system-related standards] into a single Standard."<sup>10</sup> The Bureau of Reclamation states that the revised standard "is a significant improvement over the current PRC-005-1 standard because the current standard is more likely to penalize an entity that develops an ambitious maintenance program than an entity that has a less robust maintenance program."<sup>11</sup>

Duke Energy, however, asks that the Commission reject the revised standard. Duke Energy argues that PRC-005-2 improperly expands the applicability of the protection system maintenance standard because, "as written, it could also apply to Protection Systems which detect faults on the Bulk Electric System (BES), but which don't affect the reliable operation of the BES."<sup>12</sup> Duke Energy argues that the Reliability Standard, as written, would apply to one of Duke Energy's typical protection schemes for dispersed, non-BES generation at distribution stations, because the relays involved are designed to detect faults on the BES although these particular protection schemes do not operate BES elements or interrupt network current flow from the BES.<sup>13</sup> Duke Energy maintains that these protection schemes initiate shutdown of non-BES generation only, and should not properly be covered under a protection system maintenance Reliability Standard. Duke Energy accordingly requests that the Commission remand the

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9 Details of the current ERO Reliability Standard processes are available on the NERC website at <http://www.nerc.com/pa/Stand/Resources/Documents/Appendix3AStandardsProcessesManual.pdf>

10 ITC Comments at 4.

11 Bureau of Reclamation Comments at 1.

12 Duke Energy Comments at 2. In particular, Duke Energy cites to applicability section 4.2.1, which pertains to "protection systems that are installed for the purpose of detecting Faults on BES Elements (lines, buses, transformers, etc.)."

13 *Id.* at 3-4.

standard to NERC with a directive to limit applicability of the standard to protection systems and elements thereof “which affect the reliable operation of those BES Elements” on which they detect faults.<sup>14</sup>

In the Commission’s final rule approving the standard, it found that Reliability Standard PRC-005-2 will enhance reliability as compared to the currently existing standards, and agree with ITC that PRC-005-2 promotes efficiency by consolidating protection system maintenance requirements into a single standard. Consistent with the NOPR, we believe that Reliability Standard PRC-005-2 should reduce the risk of protection system misoperations by setting out minimum maintenance activities and maximum maintenance time intervals for individual components of protection systems.<sup>15</sup> In addition, the Commission stated that PRC-005-2 will improve reliability by establishing requirements for condition-based and performance-based maintenance programs where maintenance intervals are adjusted to reflect the known and reported condition or the historical performance of the relevant devices. Finally, the Commission agreed with the Bureau of Reclamation that the revised standard removes the potential disincentive, inherent in the existing protection system maintenance standards, to adopt more aggressive maintenance programs because compliance is currently measured against each individual company’s adopted program rather than against industry standards or minimums.

The Commission was not persuaded by Duke Energy that remand of the Reliability Standard is required. Duke Energy argues that PRC-005-2 will bring a new set of protection system schemes under NERC’s protection system maintenance standard requirements. The Commission declined to make any specific determination about the applicability of this standard to specific elements or types of elements. Rather, Duke Energy may seek to raise concerns regarding applicability of the Reliability Standard to specific system elements with NERC or the relevant Regional Entity.

All other comments and the Commission’s response to those comments are included in the final rule document included with this submission as a supplemental document.

## **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**

There are no specific assurances of confidentiality mentioned to respondents.

## **11. PROVIDE ADDITIONAL JUSTIFICATION FOR ANY QUESTIONS OF A SENSITIVE NATURE**

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

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<sup>14</sup> *Id.* at 4.

<sup>15</sup> See NOPR, 144 FERC ¶ 61,055 at P 2.

## 12. ESTIMATED BURDEN OF COLLECTION OF INFORMATION

Reliability Standard PRC-005-2 includes specific requirements about the minimum maintenance activities required for each type of applicable component as well as a maximum time interval during which the maintenance must be completed. 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 current protection system maintenance programs to ensure that they meet the requirements of the revised standard PRC-005-2. Accordingly, all expected information collection costs are expected to be limited to the first year of implementation of the revised standard.

Our estimate below regarding the number of respondents is based on the NERC compliance registry as of June 10, 2013. According to the compliance registry, 544 entities are registered as distribution providers, 898 entities are registered as generation owners, and 346 entities are registered as transmission owners within the United States. However, due to significant overlap, the total number of affected entities (*i.e.*, entities registered as a distribution provider, a generation owner, a transmission owner, or some combination of these three functional entities) is 867 entities.

<b>Requirement</b>	<b>Number of Affected Entities (1)</b>	<b>Number of PSMP<sup>16</sup> Reviewed Per Entity (2)</b>	<b>Average Number of Hours per Review (3)</b>	<b>Total Burden Hours (1)*(2)*(3) =(4)</b>	<b>Total Cost (4)*\$70<sup>17</sup></b>
<b>One time review and adjustment of existing protection system maintenance program</b>	867	1	8	6,936	<b>\$485,520</b>

## 13. ESTIMATE OF THE TOTAL ANNUAL COST BURDEN TO RESPONDENTS

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

## 14. ESTIMATED ANNUALIZED COST TO FEDERAL GOVERNMENT

<sup>16</sup> PSMP = Protection System Maintenance Program

<sup>17</sup> This figure is the average of the salary plus benefits for a manager and an engineer. The figures are taken from the Bureau of Labor and Statistics at ([http://bls.gov/oes/current/naics3\\_221000.htm](http://bls.gov/oes/current/naics3_221000.htm)).



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 information collection request or clearance package.

The Commission does incur the costs associated with obtaining OMB clearance under the Paperwork Reduction Act for this Collection. FERC estimates \$2,250 as the annual cost for this effort.<sup>18</sup>

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

The change in burden is the result of new provisions related to the PRC-005-2 Reliability Standard. The increase in burden is necessary so that respondents review and update their protection system maintenance programs according to the new standard.

The following table shows burden inventory for the new FERC-725P because of the final rule.

<b>FERC-725P</b>	<b>Total Request</b>	<b>Previously Approved</b>	<b>Change due to Adjustment in Estimate</b>	<b>Change Due to Agency Discretion</b>
Annual Number of Responses	867	-	-	867
Annual Time Burden (Hr)	6,936	-	-	6,936
Annual Cost Burden (\$)	-	-	-	-

**16. TIME SCHEDULE FOR PUBLICATION OF DATA**

There are no data publications as part of this collection

**17. DISPLAY OF EXPIRATION DATE**

It is not appropriate to display the expiration date because the information is not collected on a preformatted form or in any format that would allow for such a display.

**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. Also, the one-time review of existing programs does not reduce the burden on small entities.

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<sup>18</sup> 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.

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