Supporting Statement for
FERC-725G, Transmission Relay Loadability Mandatory Reliability Standards For the Bulk-Power System
As Proposed in Docket No. RM08-13-000
(A Final Rule Issued March 18, 2010)

The Federal Energy Regulatory Commission (Commission) (FERC) is submitting a Final Rule that affects the requirements under the following information collection: **FERC-725G, Transmission Relay Loadability Mandatory Reliability Standards for the Bulk Power System**. FERC-725G is a new Commission data collection, (recordkeeping requirements), as contained in 18 Code of Federal Regulations, Part 40 for which the Commission seeks OMB review and approval. (See ICR#200905-1902 for Notice of Proposed Rulemaking submission)

Background

On August 8, 2005, The Electricity Modernization Act of 2005, (Title XII of the Energy Policy Act of 2005) (EPAct 2005), was enacted into law.[1] EPAct 2005 added a new section 215 to the Federal Power Act (FPA) and requires a Commission-certified ERO to develop mandatory and enforceable Reliability Standards, which are subject to Commission review and approval. Once approved, the Reliability Standards may be enforced by the ERO, subject to Commission oversight. (A reliability standard defines obligations or requirements of utilities and other entities that operate, plan and use the bulk power system in North America. Meeting these requirements helps to ensure the reliable planning and operation of the bulk power system. Each NERC Reliability Standard details the purpose of the standard, the entities that must comply, and the specific actions that constitute compliance and how the standard will be measured).

RM06-16-000 Final Rule, Order No. 693

On March 16, 2007, the Commission issued Order No. 693, a Final Rule that added part 40, a new part to the Commission's regulations. The Final Rule stated that this part applies to all users, owners and operators of the Bulk-Power System within the United States (other than Alaska or Hawaii). It also requires that each Reliability Standard identify the subset of users, owners and operators to which that particular Reliability Standard applies. Order No. 693 also requires that each Reliability Standard that is approved by the Commission will be maintained on the ERO's Internet website for public inspection. (The bulk power system consists of the power plants, transmission lines and substations, and related equipment and controls, that generate and move electricity in bulk to points from which local electric companies distribute the electricity to customers.)

The Commission approved 83 of 107 proposed Reliability Standards, six of the eight

1 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).

proposed regional differences, and the Glossary of Terms used in Reliability Standards as developed by the North American Electric Reliability Corporation (NERC). NERC was certified by the Commission as the Electric Reliability Organization (ERO) responsible for developing and enforcing mandatory Reliability Standards. Those Reliability Standards meet the requirements of section 215 of the FPA and Part 39 of the Commission's regulations. However, although the Commission believed that it is in the public interest to make these Reliability Standards mandatory and enforceable, the Commission also found that much work remained to be done. Specifically, the Commission believes that many of these Reliability Standards require significant improvement to address, among other things, the recommendations of the Blackout Report.

RM08-13-000 NOPR

On May 21, 2009 the Commission issued a NOPR proposing to approve the Reliability Standard PRC-023-1 "Transmission Relay Loadability Reliability Standard". PRC-023-1 was not among the original Reliability Standards approved by the Commission in Order No. 693. The proposed Reliability Standard requires certain transmission owners, generator owners, and distribution providers to set protective relays according to specific criteria in order to ensure that the relays reliably detect and protect the electric network from all fault conditions, but are to not limit transmission loadability or interfere with the system operator's ability to protect system reliability.

Proposed Reliability Standard PRC-023-1 consists of three compliance requirements.[2] Requirement R1 and R2 apply to transmission owners, generator owners, and distribution providers with transmission lines or transformers operated at or with low-voltage terminals connected at 200 kV and above. Requirement R3 applies to planning coordinators.

Requirement R1 states that each transmission owner, generator owner, and distribution provider subject to the proposed Reliability Standard shall use one of the criteria prescribed in sub-Requirements R1.1 through R1.13 for any specific circuit terminal to prevent its phase protective relay settings from limiting transmission system loadability while maintaining reliable protection of the bulk electric system for all fault conditions.[3]

Requirement R2 states that transmission owners, generator owners, and distribution providers that use a circuit with the protective relay settings determined by the practical limitations described in sub-Requirements R1.6 through R1.9, R1.12, or R1.13 must use the calculated circuit capability as the circuit's Facility Rating and must obtain the agreement of the

2 NERC has also filed a document entitled: "PRC-023 Reference – Determination and Application of Practical Relaying Loadability Ratings." NERC stated that this document explains the rationale behind the requirements in the proposed Reliability Standard and provides the calculation methodology to help entities comply.

3 Requirement R1 also requires each transmission owner, generator owner, and distribution provider to evaluate relay loadability at 0.85 per unit voltage and a power factor angle of 30 degrees.

planning coordinator, transmission operator, and reliability coordinator with the calculated circuit capability.

Requirement R3 requires planning coordinators to designate which transmission lines and transformers with low-voltage terminals operated or connected between 100 kV and 200 kV are critical to the reliability of the bulk electric system in order to prevent a cascade and therefore will be subject to Requirement R1.[4] Sub-Requirements R3.1 and R3.1.1 specify that planning coordinators must determine these facilities through a process that considers input from adjoining planning coordinators and affected reliability coordinators. Sub-Requirements R3.2 and R3.3 require planning coordinators to maintain a list of designated facilities and provide it to reliability coordinators, transmission owners, generator owners, and distribution providers within 30 days of its initial establishment, and within 30 days of any subsequent change.

In the NOPR, the Commission stated that it expected planning coordinators to use a process to carry out Requirement R3 that is consistent across regions and robust enough to identify all facilities that should be subject to PRC-023-1. The Commission expressed concern that, based on the information in NERC's petition, the "add in" approach proposed by NERC would fail to meet these expectations.

The Commission explained that since approximately 85 percent of circuit miles of electric transmission are operated at or below 253 kV, the "add in" approach could, at the outset, effectively exempt from the Reliability Standard's requirements a large percentage of facilities that should otherwise be subject to the Standard. The Commission also cited a letter from NERC to industry stakeholders discussing the results of an "add in" approach in the context of industry's self-identification of Critical Cyber Assets. According to the Commission, the letter was an acknowledgement from NERC that the "add in" approach failed to produce a comprehensive list of Critical Cyber Assets.[5] The Commission further observed that NERC failed to provide a technical basis for the "add in" approach, and did not support its claim that expanded application of PRC-023-1 would double implementation costs and distract industry resources from more important areas. The Commission added that PRC-023-1 was developed to prevent cascading outages, and that no area has a greater impact on the reliability of the bulk electric system than the prevention of cascading outages.

The Commission emphasized that PRC-023-1 must apply to relay settings on all critical facilities for it to achieve its intended reliability objective.[6] In order to meet this goal, the Commission stated that the process for identifying critical 100 kV-200 kV facilities must include the same system simulations and assessments as the Transmission Planning (TPL) Reliability Standards for reliable operation for all categories of contingencies used in transmission planning for all operating conditions. The Commission also stated that it expects a

4 The Commission notes that "planning coordinator" is an undefined entity in the NERC Glossary of Terms Used in Reliability Standards. The Commission understands that the ERO has proposed to implement the term "planning coordinator" in its glossary in a separate proceeding currently before the Commission.
5 Id.
6 Id. P 42.

comprehensive review to identify nearly every 100 kV-200 kV facility as a critical facility. In light of this expectation, and coupled with its concern about the "add in" approach, the Commission proposed to direct the ERO to adopt a "rule out" approach to applicability; that is, to modify PRC-023-1 so that it applies to relay settings on all 100 kV-200 kV facilities, with the possibility of case-by-case exceptions for facilities that are not critical to the reliability of the bulk electric system and demonstrably would not result in cascading outages, instability, uncontrolled separation, violation of facility ratings, or interruption of firm transmission service.[7]

Finally, the Commission proposed to direct the ERO to adopt an "add in" approach to sub-100 kV facilities that Regional Entities have identified as critical to the reliability of the bulk electric system.[8] The Commission explained that owners and operators of such facilities are defined as transmission owners/operators for the purposes of NERC's Compliance Registry,[9] and that sub-100 kV facilities can be included in regional definitions of the bulk electric system.[10] The Commission also stated that NERC failed to provide a sufficient technical record to justify excluding such facilities from the scope of the Reliability Standard.

RM08-13-000 FINAL RULE

On March 18, 2010 the Commission issued a Final Rule approving the Reliability Standard PRC-023-1 "Transmission Relay Loadability Reliability Standard". Reliability Standard PRC-023-1 requires transmission owners, generator owners, and distribution providers to set load-responsive phase protection relays according to specific criteria in order to ensure that the relays reliably detect and protect the electric network from all fault conditions, but do

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7 Id. P 43.

8 Id. P 45.

9 NERC's Compliance Registry is a listing of organizations subject to compliance with mandatory Reliability Standards. See NERC Rules of Procedure, Section 500. NERC's Statement of Compliance Registry Criteria, which sets forth thresholds for registration, defines "transmission owner/operator" as:

> III.d.1 An entity that owns or operates an integrated transmission element associated with the bulk power system 100 kV and above, or lower voltage as defined by the Regional Entity necessary to provide for the reliable operation of the interconnected transmission grid; or
>
> III.d.2 An entity that owns/operates a transmission element below 100 kV associated with a facility that is included on a critical facilities list defined by the Regional Entity.

See NERC Statement of Compliance Registry Criteria at 9.

10 NERC defines the bulk electric system as follows:

> As defined by the Regional Reliability Organization, the electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment, generally operated at voltages of 100 kV or higher. Radial transmission facilities serving only load with one transmission source are generally not included in this definition.

See NERC Glossary of Terms Used in Reliability Standards at 2.

not limit transmission loadability or interfere with system operators' ability to protect system reliability.[11] In addition, in accordance with section 215(d)(5) of the FPA,[12] the Commission is directing the ERO to develop modifications to PRC-023-1 to address specific concerns identified by the Commission and sets specific deadlines for these modifications.

A. Justification

1. CIRCUMSTANCES THAT MAKE THE COLLECTION OF INFORMATION NECESSARY

With the passage of the Energy Policy Act of 2005 (EPAct 2005) Congress entrusted FERC (the Commission) with the authority to approve and enforce rules to assure reliability of the Nation's Bulk Power System. Section 1211 of EPAct 2005 created a new section 215 to the Federal Power Act (FPA), which provides for a system of mandatory and enforceable Reliability Standards. Section 215(d)(1) of the FPA provides that the Electric Reliability Organization (ERO) must file each Reliability Standard or modification to a Reliability Standard that it proposes to be made effective, i.e., mandatory and enforceable, with the Commission. The law mandates that all users, owners, and operators of the Bulk-Power System in the United States will be subject to the Commission-approved Reliability Standards. On April 4, 2006, and as later modified and supplemented, the ERO submitted 107 Reliability Standards for Commission approval pursuant to section 215(d) of the FPA.

Section 215(d)(2) of the FPA provides that the Commission may approve, by rule or order, a proposed Reliability Standard or modification to a proposed Reliability Standard if it meets the statutory standard for approval, giving due weight to the technical expertise of the ERO. Alternatively, the Commission may remand a Reliability Standard pursuant to section 215(d)(4) of the FPA. Further, the Commission may order the ERO to submit to the Commission a proposed Reliability Standard or a modification to a Reliability Standard that addresses a specific matter if the Commission considers such a new or modified Reliability Standard appropriate to "carry out" section 215 of the FPA.[13] The Commission's action in this Final Rule is based on its authority in accordance with section 215 of the FPA.

On August 14, 2003, a blackout that began in Ohio affected significant portions of the Midwest and Northeast United States, and Ontario, Canada (2003 blackout). This blackout affected an area with an estimated 50 million people and 61,800 megawatts of electric load.[14] The subsequent investigation and report completed by the U.S.-Canada Power System Outage Task Force (Task Force) concluded that a substantial number of lines disconnected when backup distance and phase relays operated under non-fault conditions. The Task Force determined that the unnecessary operation of these relays contributed to cascading outages at the start of the

11 Loadability refers to the ability of protective relays to refrain from operating under load conditions.

12 16 U.S.C. 824o(d)(5).

13 See 16 U.S.C. 824o(d)(5) (2006).

14 U.S.-Canada Power System Outage Task Force, Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, (April 2004) (Final Blackout Report), available at http://www.ferc.gov/industries/electric/indus-act/blackout.asp.

blackout and accelerated the geographic spread of the cascade.[15] Seeking to prevent or minimize the scope of future blackouts, both the Task Force and NERC made recommendations to ensure that protective relays do not contribute to future blackouts.

The Task Force determined that one of the principal reasons why cascading outages spread beyond Ohio was the operation of zone 3/zone 2 relays in response to overloads rather than true faults.[16] The Task Force identified fourteen 345 kV and 138 kV transmission lines that disconnected because of zone 3/zone 2 relays applied as remote circuit breaker failure and backup protection. Among these relays were several zone 2 relays in Michigan that were set to overreach their protected lines by more than 200 percent without any intentional time delay.[17] The Task Force stated that although these and the other relays operated according to their settings, they operated so quickly that they impeded the natural ability of the electric system to hold together and did not allow time for operators to try to stop the cascade.[18] The Task Force described the unnecessary operation of these relays as the "common mode of failure that accelerated the geographic spread of the cascade."[19] The Task Force also indicated that as the cascade progressed beyond Ohio it spread because of dynamic power swings and the resulting instability.[20]

Protective relays, also know as primary relays are one type of equipment used to detect, operate and initiate the removal of faults on electric systems. Protective relays read electrical measurements (such as current, voltage and frequency) and remove from service any system element that suffers a fault and threatens to damage equipment or interfere with effective operation of the system. Protective relays are applied to protect specific system elements and are set to recognize certain electrical measurements as indicating a fault.

Impedance relays are the most common type of relays used to protect transmission lines. Impedance relays continuously measure local voltage and current on the protected transmission line and operate when the measured magnitude and phase of the impedance (voltage/current) falls within the settings or reach of the relay.[21] Impedance relays can also provide backup protection and protection against remote circuit breaker failure.

The sequence in which protective relays operate is important. For example, on a transmission line, coordination of protection through distance settings and time delays ensures

15 Id. at 80.
16 Id. at 73.
17 Id. at 80.
18 Id.
19 Id.
20 Id. at 81.
21 The "reach" of the relay refers to the length of the transmission line for which the relay is set to protect and is generally used in reference to impedance relays. Proposed Reliability Standard PRC-023-1 establishes criteria to be used for setting phase impedance, as well as, overcurrent relays dependent on the system configuration where the relay is applied. The system configurations are described in sub-requirements R1.1 through R1.13. Further, as impedance relays, also known as distance relays, detect changes in currents (I*) and voltages (V*) to determine the apparent impedance (Z*) according to the relationship of Z*=V*/I* of the line, impedance are directionally sensitive. They are forward looking into the lines that they are protecting, i.e., they protect against faults in front of and not behind the relay's installed location.

that the relay closest to a fault can operate before a relay farther away from the fault.[22] If the more distant relay operates first, it will disconnect both the transmission equipment necessary to remove the fault and "healthy" equipment that should remain in service.

In accordance with section 215 of the Federal Power Act (FPA),[23] the Commission is approving the Transmission Relay Loadability Reliability Standard (PRC-023-1), developed by the North American Electric Reliability Corporation (NERC) in its capacity as the Electric Reliability Organization (ERO).[24] NERC proposed that PRC-023-1 apply to transmission owners, generator owners, and distribution providers with load-responsive phase protection systems as described in Attachment A to PRC-023-1, applied to: (1) all transmission lines and transformers with low-voltage terminals operated or connected at 200 kV and above; and (2) those transmission lines and transformers with low-voltage terminals operated or connected between 100 kV and 200 kV that are designated by planning coordinators as critical to the reliability of the bulk electric system. The Reliability Standard also prescribes the settings that should be used when it is appropriate to use a 0.85 per unit voltage and a power factor angle of 30 degrees. NERC stated that PRC-023-1 has a broader application than the recommendations in the NERC and Task Force final reports, which address only zone 3/zone 2 relays, because other load-responsive relays were found to have contributed to the 2003 blackout.

Under the proposed Reliability Standard, protective relay settings must provide essential facility protection for faults without preventing operation of the Bulk-Power System in accordance with established Facility Ratings.[25] If an essential fault protection imposes a more constraining limit on the system, PRC-023-1 requires that the Facility Rating reflect that limit. Proposed Reliability Standard PRC-023-1 applies to any protective functions that could operate with or without time delay, on load current, including but not limited to: phase distance, out-of-step tripping, switch-on-to-fault, overcurrent relays, and communication-aided protection applications. It also requires evaluation of out-of-step blocking schemes[26] to ensure that they do not operate for faults during specified loading conditions.[27]

In accordance with section 215(d)(2) of the FPA, the Commission is approving Reliability Standard PRC-023-1 as just, reasonable, not unduly discriminatory or preferential,

22 "Coordination of protection" is defined by the Institute of Electrical and Electronics Engineers (IEEE) Std. C37.113-1999, "IEEE Guide for Protective Relay Applications to Transmission Lines" as "[t]he process of choosing settings or time delay characteristics of protective devices, such that operation of the devices will occur in a specified order to minimize customer service interruption and power system isolation due to a power system disturbance."

23 16 U.S.C. 824o. The Commission is not adding any new or modified text to its regulations.

24 Section 215(e)(3) of the FPA directs the Commission to certify an ERO to develop mandatory and enforceable Reliability Standards, subject to Commission review and approval. 16 U.S.C. 824o(e)(3). Following a selection process, the Commission selected and certified NERC as the ERO. North American Electric Reliability Corp., 116 FERC ¶ 61,062 (ERO Certification Order), order on reh'g & compliance, 117 FERC ¶ 61,126 (ERO Rehearing Order) (2006), aff'd sub nom. Alcoa, Inc. v. FERC, 564 F.3d 1342 (D.C. Cir. 2009).

25 As defined in NERC's Glossary of Terms Used in Reliability Standards.

26 "Out-of-step blocking" refers to a protection system that is capable distinguishing between a fault and a power swing. If a power swing is detected, the protection system, "blocks," or prevents the tripping of its associated transmission facilities.

27 See PRC-023-1 Attachment A, Item 1.

and in the public interest. The Commission agrees with the ERO that PRC-023-1 is a significant step toward improving the reliability of the Bulk-Power System in North America because it requires that protective relay settings provide essential facility protection for faults, while allowing the Bulk-Power System to be operated in accordance with established Facility Ratings.

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

Prior to enactment of section 215, FERC had acted primarily as an economic regulator of wholesale power markets and the interstate transmission grid. In this regard, the Commission acted to promote a more reliable electric system by promoting regional coordination and planning of the interstate grid through regional independent system operators (ISOs) and regional transmission organizations (RTOs), adopting transmission pricing policies that provide price signals for the most reliable and efficient operation and expansion of the grid, and providing pricing incentives at the wholesale level for investment in grid improvements and assuring recovery of costs in wholesale transmission rates.

The passage of the Electricity Modernization Act of 2005 added to the Commission's efforts identified above, by giving it the authority to strengthen the reliability of the interstate grid through the grant of new authority pursuant to section 215 of the FPA which provides for a system of mandatory Reliability Standards developed by the ERO, established by FERC, and enforced by the ERO and Regional Entities.

As part of FERC's efforts to promote grid reliability, the Commission created a new office, the Office of Electric Reliability. One task of this office has been to participate in North American Reliability Council's (NERC's) Reliability readiness reviews of balancing authorities, transmission operators and reliability coordinators in North America to determine their readiness to maintain safe and reliable operations. FERC's Office of Reliability has also been engaged in studies and other activities to assess the longer-term and strategic needs and issues related to power grid reliability. Specifically, OER performs the following functions:

- Monitor and participate in the standards development process to help improve the quality of reliability standards proposed to the Commission. Review filed standards to make recommendations as to whether the Commission should approve or remand it, or whether the Commission should direct the Electric Reliability Organization (ERO) to create a new standard or revise an existing standard.

- Monitor the compliance of the users, owners, and operators of the bulk power system with the reliability standards.

- Lead or join in periodic and unscheduled reviews and audits of the ERO, Regional Entities, and users, owners, and operators to determine the effectiveness of their reliability programs and their compliance with reliability standards.

- Lead or join in analysis and investigations concerning complaints, blackouts, near-misses, etc., on the bulk power system to determine if reliability standards were violated, changes to the reliability standards are warranted, or if the reliability standards are adequate for their intended purpose.

- Oversee the ERO's resource adequacy assessments to identify and investigate constraints on the bulk power system.

- Engage in the regional planning processes to determine if proposed and approved projects are sufficient to meet the reliability requirements.

- Work with other internal and external groups to evaluate elements that may impact the bulk power system (such as fuel constraints, generation and transmission siting and permitting, congestion, rate recovery for reliability expenditures, etc.) and cost recovery options for potential solutions.

The Commission assists in creating a more reliable electric system by:

- Fostering regional coordination and planning of the interstate grid through independent system operators and regional transmission organizations;
- Adopting transmission policies that provide price signals for the most reliable and efficient operation and expansion of the grid; and
- Providing pricing incentives at the wholesale level for investment in grid improvements and ensuring opportunities for cost recovery in wholesale transmission rates.

NERC proposed that PRC-023-1 be made effective consistent with the implementation plan specified in the Reliability Standard.[28] That plan proposes that Requirements R1 and R2 be made effective on the beginning of the first calendar quarter following applicable regulatory approvals. For smaller facilities deemed critical to system reliability that are subject to Requirements R1 and R2, NERC proposed an effective date of the beginning of the first calendar quarter 39 months after applicable regulatory approvals. NERC also proposed that, upon being notified that a facility has been added to the Critical Facilities list, the facility owner will have 24 months to comply with R1 and its sub-Requirements. For Requirement R3, NERC proposed an effective date of 18 months following applicable regulatory approvals. NERC stated that the technical requirements of the proposed Reliability Standard have been voluntarily implemented by most applicable entities starting in January 2005.

28 On February 2, 2009, NERC filed an erratum to its petition to address an inadvertent reference to the requested effective date. NERC requests that the Reliability Standard be made effective consistent with the implementation plan accompanying the Reliability Standard.

The Commission emphasizes, however, that compliance with PRC-023-1 does not guarantee compliance with the requirements of other Reliability Standards or guarantee that applicable entities have achieved their reliability goals. Reliability Standards are intended to provide coordinated and complementary requirements that ensure reliable operation of the Bulk-Power System. Consequently, they cannot be implemented in a vacuum and must be implemented with regard to the requirements of other Reliability Standards. For example, because Protection System settings and coordination of protection are determined as an output of and in concert with the Transmission Planning Reliability Standards (TPL Reliability Standards)[29] and other Protection and Control Reliability Standards, entities that are subject to PRC-023-1 must implement its Requirements with other applicable Reliability Standards in view. Thus, protective relay settings determined and applied in accordance with the requirements of PRC-023-1 must be included in determining system performance, System Operating Limits, and Interconnection Reliability Operating Limits, and must be coordinated with other protective relay settings as required by the applicable Reliability Coordination (IRO), Transmission Operations (TOP), and TPL Reliability Standards.[30]

The Transmission Relay Loadability Reliability Standard, as adopted, implements 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, this Reliability Standard will ensure that protective relays are set according to specific criteria to ensure that relays reliably detect and protect the electric network from all fault conditions, but do not limit transmission loadability or interfere with system operator's ability to protect system reliability.

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

The Commission has developed the capability for electronic filing of all major submissions to the Commission. In Order No. 619, the Commission established an electronic filing initiative that permits over 40 qualified types of documents to be filed over the Internet to its website. This includes the ability to submit standard forms using software that is readily available and easy to use. Electronic filing, combined with electronic posting and service over the web site, permits staff and the public to obtain filings in a faster and more efficient manner.

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29 For example, the critical clearing time needed to achieve the criteria identified in Table 1 of the TPL Reliability Standards would be an input to the coordination of Protection Systems in Reliability Standard PRC-001-1.

30 See Mandatory Reliability Standards for the Bulk-Power System, Order No. 693, FERC Stats. & Regs. ¶ 31,242, at P 1435, order on reh'g, Order No. 693-A, 120 FERC ¶ 61,053 (2007) ("Protection systems on Bulk-Power System elements are an integral part of reliable operations . . . . In deriving [System Operating Limits] and [Interconnection Reliability Operating Limits], moreover, the functions, settings, and limitations of protection systems are recognized and integrated.").

The Commission is working to expand the qualified types of documents that can be filed over the Internet.

On November 15, 2007, the Commission issued a Final Rule, RM07-16-000, Order No. 703, "Filing via the Internet" 73 Fed. Reg. 65659 (November 23, 2007) revising its regulations for implementing the next version of its system for filing documents via the Internet, eFiling 7.0. The Final Rule allows the option of filing all documents in Commission proceedings through the eFiling interface except for specified exceptions, and of utilizing online forms to allow "documentless" interventions in all filings and quick comments in P (Hydropower Project), PF (Pre-Filing NEPA activities for proposed gas pipelines), and CP (Certificates for Interstate Natural Gas Pipelines) proceedings.

In order that the Commission is able to perform its oversight function with regard to Reliability Standards that are proposed by the ERO and established by the Commission, it is essential that the Commission receive timely information regarding all or potential violations of Reliability Standards. While section 215 of the FPA contemplates the filing of the record of an ERO or Regional Entity enforcement action, FERC needs information regarding violations and potential violations at or near the time of occurrence. Therefore, it is working with the ERO and regional reliability organizations to use electronic filing of information so the Commission receives timely information.

Reliability Standard PRC-023-1 does not require responsible entities to file information with the Commission. However, the Reliability Standard requires applicable entities to develop and maintain certain information subject to audit by a Regional Entity. In particular, transmission owners, generator operators and distribution operators must "have evidence" to show that each of the relays are set to one of the criteria in the Reliability Standard, transmission owners, generator operators and distribution providers must have evidence that a facility rating was agreed to by the relevant planning authority, transmission operator and reliability coordinator. In addition, the regulations established by Order No. 693 require that each Reliability Standard that is approved by the Commission will be maintained on the ERO's Internet website for public inspection.

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

Filing requirements are periodically reviewed as OMB review dates arise or as the Commission may deem necessary in carrying out its responsibilities under the FPA in order to eliminate duplication and ensure that filing burden is minimized. There are no similar sources of information available that can be used or modified for these reporting purposes. The filing requirements contained in FERC-725G will incorporate NERC's requirements. However, all reliability requirements will be subject to FERC approval along with the requirements developed by Regional Entities and Regional Advisory Bodies and the ERO.

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

FERC-725G is a filing requirement concerning the implementation of a Reliability Standard by the Electric Reliability Organization and its responsibilities as well as those of Regional Entities and Regional Advisory Bodies in the development of Reliability Standards. The Electricity Modernization Act specifies that the ERO and Regional Entities are not departments, agencies or instrumentalities of the United States government and will not be like most other businesses, profit or not-for–profit. Congress created the concept of the ERO and Regional Entities as select, special purpose entities that will transition the oversight of the Bulk-Power System reliability from voluntary, industry organizations to independent organizations subject to Commission jurisdiction.

As noted above, Section 215(b) of the FPA requires all users, owners and operators of the Bulk-Power System to comply with Commission-approved Reliability Standards. Each proposed Reliability Standard submitted for approval by NERC applies to some subset of users, owners and operators. However, the Commission believes that in achieving compliance with the Reliability Standards, the burden could be minimized for smaller entities by having them join a joint action agency or a generation or transmission cooperative or similar organization that would assume responsibility for compliance on behalf of its members. In addition, the Commission is relying on the registry established by NERC that spells out the criteria of who will be subject to the Reliability Standards.

In Order No. 693, the Commission adopted policies to minimize the burden on small entities, including approving the ERO compliance registry process to identify those entities responsible for complying with mandatory and enforceable Reliability Standards. The ERO registers only those distribution providers or load serving entities that have a peak load of 25 MW or greater and are directly connected to the bulk electric system or are designated as a responsible entity as part of a required under-frequency load shedding program or a required under-voltage load shedding program. Similarly, for generators, the ERO registers only individual units of 20 MVA or greater that are directly connected to the bulk electric system, generating plants with an aggregate rating of 75 MVA or greater, any blackstart unit material to a restoration plan, or any generator that is material to the reliability of the Bulk-Power System. Further, the ERO will not register an entity that meets the above criteria if it has transferred responsibility for compliance with mandatory Reliability Standards to a joint action agency or other organization. The Commission estimated that the Reliability Standards approved in Order No. 693 would apply to approximately 682 small entities (excluding entities in Alaska and Hawaii), but also pointed out that the ERO's Compliance Registry Criteria allow for a joint action agency, generation and transmission (G&T) cooperative or similar organization to accept compliance responsibility on behalf of its members. Once these organizations register with the

ERO, the number of small entities registered with the ERO will diminish and, thus, significantly reduce the impact on small entities.[31]

NOPR Proposal

In the NOPR, the Commission asserted that most of the entities, i.e., transmission owners, generator owners, distribution providers, and "planning coordinators," or alternatively "planning authorities," to which the requirements of the Final Rule will apply, do not fall within the applicable definition of "small entities." The Commission also stated that, based on available information regarding NERC's compliance registry, approximately 525 entities will be responsible for compliance with the new Reliability Standard. Consequently, the Commission certified that the Reliability Standard will not have a significant adverse impact on a substantial number of small entities and that no RFA analysis was required.

APPA, TAPS, NRECA, and SWTDUG argued that the "rule out" approach for 100 kV-200 kV facilities and the "add in" approach for sub-100 kV facilities will cause the Reliability Standard to have a significant adverse impact on a substantial number of small entities.

NRECA argued that the Commission's Initial Analysis was inadequate and its conclusion premature given the Commission's proposals to expand the Reliability Standard's applicability. NRECA argued that the Commission cannot develop an adequate Final Analysis without an Initial Analysis that lays the proper foundation for eliciting comments and seeking information. APPA argued that the Commission's Initial Analysis is flawed and fails to: (1) assess the effect the regulation will have on small entities; (2) analyze effective alternatives that might minimize the regulation's impact; and (3) make such an analysis available for public comment.

APPA and NRECA also argued that the Commission failed to: (1) provide its basis for claiming that only 525 entities from the NERC Compliance Registry will be required to comply with the Reliability Standard; (2) justify its assertion that the majority of the expected 525 entities required to comply do not qualify as small entities under the Small Business Act; (3) state how many of the 525 affected entities are small entities; and (4) identify the registered entities that are required to comply. APPA argued that the Commission's expectation that 525 facilities will be required to comply with the Reliability Standard is based on the Reliability Standard as proposed by NERC, and does not account for the Commission's potentially broader applicability proposals. APPA stated that 261 of its members are registered entities and qualify as small entities. NRECA added that a substantial majority of its approximately 930 rural electric cooperative members are small entities that would be adversely impacted by the proposed rule.

TAPS argued that the "rule out" approach will increase the burden on small systems and may force the Commission to depart from the Compliance Registry criteria that formed the basis

31 To be included in the compliance registry, the ERO determines whether a specific small entity has a material impact on the Bulk-Power System. If these small entities should have such an impact then their compliance is justifiable as necessary for Bulk-Power System reliability.

for its RFA certification in Order No. 693. TAPS explained that if the "rule out" approach will make all 100 kV facilities subject to the Reliability Standard, including radial transmission lines, then the Standard will apply to unregistered small entities that have not previously been considered part of the bulk electric system and therefore do not appear on the Compliance Registry that served as the basis for the Commission's small entity impacts analysis.

Commission' Response

The Commission is not adopting the NOPR proposal to make PRC-023 applicable to all facilities operated at or above 100 kV, "ruling out" those facilities that would not demonstrably result in cascading outages, instability, uncontrolled separation, violation of facility ratings, or interruption of firm transmission service. Accordingly, to the extent that the Commission has decided to abandon the "rule out" approach in favor of an "add-in" approach, the Commission expects that many of the concerns and impact estimates submitted by commenters are moot or no longer accurate. (See further discussion in item nos. 12 and 13)

However, the Commission finds it appropriate to address commenters' concerns regarding the number of entities that the Commission estimates will be subject to PRC-023-1 as proposed by NERC. Based on the Compliance Registry dated November 30, 2009, there are 573 entities registered as Distribution Providers, 821 entities registered as Generator Owners, 323 entities registered as Transmission Owners, and 80 entities registered as Planning Authorities. However, the Commission notes that some entities are registered for multiple functions, and therefore recognizes that there is some overlap between the entities registered as a Distribution Provider, Transmission Owner, Generator Owner, and/or Planning Authority. Therefore, after eliminating any duplicative registrations, the Commission finds that there are 1301 entities that are registered as engaging in one or more of the applicable functions within the scope of PRC-023-1.

Reliability Standard PRC-023-1 applies to Transmission Owners, Generator Owners, and Distribution Providers with load-responsive phase protection systems as described in Attachment A of the Reliability Standard, applied to facilities defined in requirements 4.1.1 through 4.1.4.[32] The Reliability Standard applies to facilities 100 kV and above and to transformers with low-voltage terminals 200 kV and above. Because there are no commercial generators with a terminal voltage as high as 100 kV and all generator step-up and auxiliary power transformers have low-voltage windings well below 200 kV, PRC-023-1 excludes

32 As proposed, the Commission notes PRC-023-1 is applicable to Generator Owners with load-responsive phase protection systems as described in Attachment A, applied to facilities defined in 4.1.1 through 4.1.4., however, excludes generator protection relays that are susceptible to load in Section (3) of Attachment A.

generators and all generator step-up and auxiliary transformers. Therefore, no generator owner that is not also a transmission owner and/or a distribution provider will be subject to PRC-023-1. Accordingly, the Commission calculates that the potential applicability of the Final Rule may be reduced by 623, which is the total number of entities registered solely as a generator owner. Thus, the Commission anticipates that the Final Rule will apply to approximately 678 entities overall.[33]

According to the Department of Energy's Energy Information Administration (EIA), there were 3271 electric utility companies in the United States in 2007,[34] and approximately 3012 of these electric utilities qualify as small entities under the Small Business Act (SBA) definition.[35] Of those 3012 small entities, only 80 entities also appear in the NERC Compliance Registry. Accordingly, the Commission estimates that the Reliability Standard will affect a maximum of 80 SBUs, or approximately 12 percent of those entities estimated to be subject to the requirements of the Final Rule.

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

The Electric Reliability Organization (ERO) will conduct periodic assessments of the reliability and adequacy of the Bulk-Power System in North America and report its findings to the Commission, the Secretary of Energy, Regional Entities, and Regional Advisory Bodies annually or more frequently if so ordered by the Commission. The ERO and Regional Entities will report to FERC on their enforcement actions and associated penalties and to the Secretary of Energy, relevant Regional entities and relevant Regional Advisory Bodies annually or

33 The Commission derives this result by using the following equation: 1301 applicable entities (entities registered as one of more of the following functions: Distribution Provider, Transmission Owner, Generator Owner, and Planning Authority) – 623 entities registered solely as a Generator Owner = 678.

34 See U.S. Energy Information Administration, Form EIA-861, Dept. of Energy (2007), available at http://www.eia.doe.gov/cneaf/electricity/page/eia861.html.

35 According to the SBA, a small electric utility is defined as one that has a total electric output of less than four million MWh in the preceeding year.

quarterly in a manner to be prescribed by the Commission. If the information were conducted less frequently or discontinued, the Commission would be placed at a disadvantage in not having the data necessary for monitoring its mandated obligations.

7. EXPLAIN ANY SPECIAL CIRCUMSTANCES RELATING TO THE INFORMATION COLLECTION

FERC-725G is a filing requirement necessary to comply with the applicable provisions of the Electricity Modernization Act of 2005 and section 215 of the Federal Power Act.

In accordance with section 39.5 of the Commission's regulations, the ERO must file each Reliability Standard or a modification to a Reliability Standard with the Commission. The filing is to include a concise statement of the basis and purpose of the proposed Reliability Standard, either a summary of the Reliability development proceedings conducted by the ERO or a summary of the Reliability Standard development proceedings conducted by a Regional Entity together with a summary of the Reliability Standard review proceedings of the ERO and a demonstration that the proposed Reliability Standard is "just, reasonable, not unduly discriminatory or preferential, and in the public interest.

The ERO must make each effective Reliability Standard available on its Internet website. Copies of the effective Reliability Standards will be available from the Commission's Public Reference Room.

The Commission requires an original and seven copies of the proposed Reliability Standard or to the modification to a proposed Reliability Standard to be filed. This exceeds the

OMB guidelines in 5 CFR 1320.5(d) (2) (iii) because of the number of divisions within the Commission that must analyze the standard and corresponding reports in order to carry out the regulatory process. The original is docketed, imaged through e-Library and filed as a permanent record for the Commission. The remaining copies are distributed to the necessary offices of the Commission with one being placed immediately in the Commission's Public Reference Room for public use. Since the time frame for responses to the request is very limited, the multiple hard copies are necessary for the various offices to review, analyze and prepare the final order at the same time. The electronic filing initiative at FERC, may in the near future, allow for relief of the number of copies, but at this time, the program turn around time for docketing, imaging and retrieval does not permit sufficient time to review the filings and to prepare the necessary documents for the processing of these filings.

In addition, individual reliability standards may have records retention schedules that exceed OMB guidelines in 5 CFR 1320.5(d)(2)(iv) of not retaining records for no longer than three years. The Commission is not prescribing a set data retention period to apply to all Reliability Standards.

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

Each Commission rulemaking (both NOPRs and Final Rules) are published in the Federal Register, thereby affording all 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 notice procedures also allow for public conferences to be held as required.

In response to the NOPR, the Commission received comments addressing its remarks about the test that planning coordinators must use to implement Requirement R3 and its proposals to direct the ERO to adopt the "rule out" approach for 100 kV-200 kV facilities and the "add in" approach for sub-100 kV facilities.

Commenters generally agree with the Commission that the process for identifying critical facilities pursuant to Requirement R3 should include the same simulation and assessments required by the TPL Reliability Standards for all operating conditions. However, commenters disagree with the Commission's expectation that planning coordinators will identify nearly every 100 kV-200 kV facility as a critical facility. For example, Duke reported that it has applied the existing TPL standards to its Midwest and Carolina systems and has not identified any sub-200 kV facility as a critical facility (i.e., there have been no showings that the loss of any such facilities could result in cascading outages, instability, or uncontrolled separation). Other commenters maintained that the Commission's expectation is not supported by any technical evidence and depends on a circular definition between "above 100 kV" and "critical to the reliability of the bulk electric system."[36]

NERC recognized the need for consistent criteria across North America for identifying critical 100 kV-200 kV facilities and proposes to work through industry to develop it.[37] Although NERC did not propose a test in PRC-023-1, in its comments it did provide the suggestions for identifying operationally significant 100 kV-200 kV facilities that the NERC System Protection and Control Task Force provided to Regional Entities in 2004 and 2005 during the voluntary Beyond Zone 3 relay review and mitigation program.[38] During that program, NERC suggested that Regional Entities identify:

> All circuits that are elements of flowgates [[39]] in the Eastern Interconnection, Commercially Significant Constraints in the Texas Interconnection, or Rated Paths in the Western Interconnection. This includes both the monitored and outage element for OTDF [Outage Transfer Distribution Factor] sets. [[40]]
>
> All circuits that are elements of system operating limits (SOLs) and interconnection reliability operating limits (IROLs), including both monitored and outage elements.
>
> All circuits that are directly related to off-site power supply to nuclear plants. Any circuit whose outage causes unacceptable voltages on the off-site power bus at a nuclear plant must be included, regardless of its proximity to the plant.
>
> All circuits of the first 5 limiting elements (monitored and outaged elements) for transfer

36 See, e.g., Basin, Exelon, and WECC.
37 NERC Comments at 12.
38 For a discussion of the Beyond Zone 3 relay review and mitigation program, see infra P 34.
39 A "flowgate" is a single or group of transmission elements intended to model MW flow impact relating to transmission limitations and transmission service outage. See Final Black Report at 214. Flowgates are operationally significant for the purpose of ensuring desirable system performance because an actual outage would present the modeled physical limitations on the bulk electric system.
40 In the post-contingency configuration of a system under study, Outage Transfer Distribution Factor refers to the measure of the responsiveness or change (expressed in percent) in electrical loadings on transmission system facilities due to a change in electric power transfer from one area to another with one or more system facilities removed from service.

> interfaces [[41]] determined by regional and interregional transmission reliability studies. If fewer than 5 limiting elements are found before reaching studied transfers, all should be listed.
>
> Other circuits determined and agreed to by the reliability authority/coordinator and the Regional Reliability Organizations.

In its comments, APPA proposed that the Commission direct NERC to develop a process whereby each region can develop a specific methodology to ensure consistent, verifiable identification of critical facilities.

Commenters unanimously opposed the "rule out" approach. In general, they argued that it is unnecessary, extremely costly, and potentially detrimental to reliability.

NERC, EEI, and WECC argued that the cascade of 138 kV lines that occurred during the August 2003 blackout would not have occurred if the 345 kV lines in their vicinity had not tripped, and that the 345 kV lines would not have tripped if PRC-023-1 had been in effect prior to the blackout.[42] EEI, PG&E, and SRP added that whenever a facility between 100 kV and 200 kV trips on load, it is almost always because of preceding faults at higher voltages.

Some commenters argued that the majority of facilities between 100 kV and 200 kV are not critical to the reliability of the bulk electric system and are unlikely to contribute to cascading outages at higher voltages. APPA, EEI, and WECC stated that most wide-area bulk power transfers flow on high voltage facilities, while most sub-200 kV facilities support local distribution service.[43] SRP asserted that a malfunction on a 100 kV-200 kV line typically causes an outage only for the load connected to the faulted part of the line, leaving the rest of the line unaffected; PG&E made the related claim that the tripping of a 100 kV-200 kV facility generally has a low impact on the reliability of higher voltage systems, even when the two systems run in parallel. APPA argued that cascading outages at higher voltages are unlikely to be arrested by relay action at lower voltages. EEI added that many 100 kV-200 kV facilities are designed to support local distribution service and their related protection systems are set to ensure separation, including load shedding, if disturbances or system events take place. EEI asserted that these systems ensure "controlled separation" that, by definition, does not involve the Bulk-Power System.

Commenters also argued that the "rule out" approach is a costly and inefficient use of limited industry resources that will place an unreasonable burden on small entities and require utilities to incur unnecessary upfront costs, forego other important initiatives, and direct money

41 An "interface" is the specific set of transmission elements between two areas or between two areas comprising one or more electrical systems. See Final Blackout Report at 215. An interface is operationally significant for the purpose of ensuring desirable system performance because an outage of an interface would affect IROLs.
42 See, e.g., NERC Comments at 10, 16.
43 SRP and Y-WEA emphasize that this is especially true in the western interconnection, where sub-200 kV facilities are generally used as localized means for distributing electricity to moderately sized and geographically distant load centers. See also ElectriCities and NWCP.

and personnel away from the work necessary to ensure the day-to-day reliability of the bulk electric system.

NERC stated that it modeled PRC-023-1 on two post-blackout relay review and mitigation programs (the Zone 3 Review and Beyond Zone 3 Review) that focused primarily on facilities operated at or above 200 kV, and that these programs give it a basis for concluding that the costs of the "rule out" approach are extremely high.[44] NERC reported that these programs took over three years to complete, required close to 150,000 hours of labor, cost almost $18 million, and resulted in mitigation costs (equipment change-outs or additions) of approximately $65 million, or $111,500 per terminal. Based on a survey of industry conducted after the NOPR, NERC estimated that a review and mitigation program for all facilities between 100 kV and 200 kV would far exceed these costs in time and money. NERC estimated that such a program would entail review of approximately 53,000 terminals, require close to 340,000 hours of labor, and cost almost $41 million.[45] Based on the results of the previous review programs, NERC estimates that at least 11,400 terminals could be out-of-compliance and that mitigation could take between 5 and 10 years and cost approximately $590 million.[46] In contrast, NERC estimated that the "add in" approach would entail review of only 2,400 terminals and require mitigation for approximately 500, roughly 240 of which would require equipment replacement.[47]

Some commenters argued that the "rule out" approach may adversely affect reliability. Exelon is concerned that the "rule out" approach may unintentionally result in the over-inclusion of facilities subject to PRC-023-1. Exelon believes that such over-inclusion will take a known and successful backup protection scheme and make it less effective. Exelon explained that over-inclusion will increase the risk of certain instances of backup relaying not tripping when it should, thus allowing what would otherwise be a minor disturbance to expand unnecessarily.[48] Consumers Energy and Entergy argued that the "rule out" approach will require entities to divert scarce resources from other duties that are essential to reliability, thereby adversely affecting reliability. Basin argued that the complexity of integrating PRC-023-1 with other Reliability Standards for lower voltage lines will divert personnel from more important aspects of the Reliability Standards and adversely affect reliability.

In addition to these arguments, commenters opposed the "rule out" approach on the grounds that it: (1) fails to give due weight to the technical expertise of the ERO, as required by section 215(d)(2) of the FPA; (2) violates Order No. 693 because it prescribes a specific change that will dictate the content of the modified Reliability Standard;[49] (3) is inconsistent with the

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44 The Zone 3 Review examined 10,914 terminals operating at or above 200 kV. The Beyond Zone 3 Review examined 12,273 terminals operating at or above 200 kV and operationally significant terminals operating between 100 kV and 200 kV. NERC Comments at 9-16.
45 Id. at 13-14. NERC added that 114 transmission owners operating 100 kV-200 kV lines responded to the survey.
46 Id. at 14.
47 Id. at 15.
48 See also Ameren at 8.
49 See e.g., TAPS, APPA, EEI, Ameren, Manitoba Hydro, Georgia Transmission, Tri-State, CRC, EEI, APPA, Ameren, TANC, Fayetteville Public Works Commission, and LES.

Commission's statements in Order No. 672 about the cost of Reliability Standards;[50] (4) rests on the unsupported assumption that planning coordinators will fail to produce a comprehensive list of critical facilities; and (5) mischaracterizes NERC's letter expressing concern about the use of an "add in" approach in the Critical Cyber Assets survey.[51]

In the event that the Commission adopts the "rule out" approach, commenters argued that the Commission should immediately confirm the following exclusions: (1) facilities that are not part of a defined and routinely monitored flowgate; (2) radial transmission lines, because they are specifically excluded from the bulk electric system and are not critical to the reliability of the bulk electric system;[52] and (3) Category D Contingencies, because they involve the loss of multiple transmission facilities caused by the outage of transmission facilities other than those relevant to the Reliability Standard.

Commenters also disagreed with what they describe as the Commission's 5-part test for case-by-case exceptions from the "rule out" approach, that is, its proposal to permit exceptions for facilities that demonstrably would not result in: (1) cascading outages; (2) instability; (3) uncontrolled separation; (4) violation of facility ratings; or (5) interruption of firm transmission service.

At the outset, commenters asserted that they do not understand the relationship between the 5-part test for exceptions from the "rule out" approach and the Commission's insistence that the "add in" process must include the same simulations and assessments as the TPL Reliability Standards. Commenters are unsure whether the 5-part test is in addition to, or in lieu of, the TPL assessments.

Commenters also challenged the substance of the 5-part test, generally arguing that it requires more than a showing that a facility is unlikely to contribute to cascading thermal outages and introduces more rigorous requirements than those in the TPL Reliability Standards. Specifically, APPA, Duke, Exelon, and TAPS argued that interruption of firm transmission service and violation of facility ratings do not belong as elements of the test because: (1) they do not result in instability, uncontrolled separation, or cascading failures, and are absent from the definition of "Reliable Operation" in section 215 of the FPA;[53] (2) avoiding an interruption

50 In Order No. 672, the Commission stated that "[a] proposed Reliability Standard does not necessarily have to reflect the optimal method, or 'best practice,' for achieving its reliability goal without regard to implementation cost . . . . [but] should[,] however[,] achieve its reliability goal effectively and efficiently;" Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards, Order No. 672, FERC Stats. & Regs. ¶ 31,204, at P 328, order on reh'g, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006).

51 See e.g., Exelon, PG&E, EEI, Basin, and TAPS.

52 See e.g., ElectriCities, NWCP, Palo Alto, PSEG Companies, Pacific Northwest State Commissions, Y-WEA, and Filing Cooperatives.

53 Section 215 defines "Reliable Operation" as "operating the elements of the bulk-power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance, including a cybersecurity incident, or unanticipated failure of system elements." 16 U.S.C. 824o(a)(4).

of firm transmission service is a business issue; (3) a requirement specifying that the loss of a 138 kV line cannot result in interruption of local load goes beyond the requirements of existing Reliability Standards; (4) the loss of a 138 kV line does not show a loss of bulk electric system reliability; and (5) "violation of facility ratings" is unduly vague and over-broad because it is not restricted to bulk electric system facilities other than the facility in question and is not focused on violation of emergency ratings caused by an outage of the facility in question.

Commenters also argued that NERC should develop the test for exclusions and that there should be some mechanism for entities to challenge criticality determinations. For example, APPA argues that the Regional Entity should establish a process for entities to challenge criticality determinations.

Commenters also addressed the Commission's proposal to direct the ERO to adopt an "add in" approach to sub-100 kV facilities, with most objecting to what they perceive as the Commission's view of the Compliance Registry.[54] NERC argued that the Commission mischaracterized the nature and purpose of the Compliance Registry by suggesting that entities on the Registry must comply with all Reliability Standards for all of their facilities.[55] NERC explained that the Compliance Registry does not specify which entities must comply with any particular Reliability Standard, but that each individual Standard specifies the entities and the facilities that are subject to it. TAPS and APPA asserted that a facility may be "critical" for the purpose of inclusion on the Compliance Registry, but not "operationally significant" for the purpose of avoiding cascading thermal outages. For example, TAPS stated that a sub-100 kV line that connects to a black start unit and is designated as part of a transmission operator's restoration plan would be deemed critical for Compliance Registry purposes, but may not be operationally significant for purposes of thermal cascading outages.[56]

54 See e.g., NERC, EEI, TAPS, TANC, Ontario Generation, SWTDUG, and APPA.
55 See also TANC and Ontario Generation.
56 TAPS at 16; see also APPA at 28.

Several commenters requested that the Commission confirm their understanding of what is required if the Commission adopts its proposal. ERCOT and TAPS requested confirmation that the Reliability Standard will apply only to those sub-100 kV facilities that are already in the Compliance Registry, and that future registration will be subject to a case-by-case demonstration of criticality. Likewise, SWTDUG is concerned that the Commission's proposal will require non-registered public power entities with sub-100 kV facilities to become Registered Entities. ERCOT also requested confirmation that the only required revision to the Reliability Standard would be the addition of sub-100 kV facilities to the applicability section. ISO New England requests confirmation that the Commission does not intend to create an enforceable obligation against Regional Entities by directing them to undertake—solely for the purpose of compliance with PRC-023-1—a process to determine which sub-100 kV facilities are critical to the reliability of the bulk electric system. ISO New England asserted that NERC has already delegated to Regional Entities the role of designating critical sub-100 kV facilities as part of the Compliance Registry process.[57] ISO New England sought clarification that the Commission's proposal merely requires the addition of a cross-reference to previous designations of criticality made pursuant to the Compliance Registry process.

ITC, IRC, and IESO/Hydro One support the Commission's proposal. These commenters argued that a proactive approach should be used to identify any facilities critical to the reliability of the bulk electric system.

NERC and EEI opposed the Commission's proposal; however, both concede that it may have merit and should be studied through the Reliability Standards development process.[58] SWTDUG and TAPS opposed the Commission's proposal and argued that the Final Blackout Report does not support extending the Reliability Standard to relay settings on sub-100 kV facilities. TAPS maintained that the Commission must give "due weight" to NERC's exclusion of sub-100 kV facilities.

EPSA argued that the Commission's proposal lacks technical support and fails to identify a specific reliability gap. EPSA contends that the Commission should use "Reliability Engineering" to determine if its project has a technical basis. EEI argued that few sub-100 kV facilities are critical to the reliability of the bulk electric system. EEI stated that because it usually requires multiple 69 kV lines to replace one 138 kV line, it is highly unlikely that sub-100 kV facilities will cause a major cascade. EEI asserted that it is much more likely that sub-100 kV facilities will trip to end a cascade, as occurred during the August 2003 blackout.

Commission's Response

The Commission is declining to direct the ERO to adopt the "rule out" approach for 100 kV-200 kV facilities. However, the Commission is adopting the NOPR proposal and directing

57 ISO New England at 3.
58 NERC Comments at 18-19; EEI at 17-18.

the ERO to modify PRC-023-1 to apply an "add in" approach to certain sub-100 kV facilities that Regional Entities have already identified or will identify in the future as critical facilities for the purposes the Compliance Registry.[59] Finally, the Commission directs the ERO to modify Requirement R3 of the Reliability Standard to include the test that planning coordinators must use to identify sub-200 kV facilities that are critical to the reliability of the bulk electric system.

"Rule Out" Approach

The Commission will not direct the ERO to adopt the "rule out" approach. After further consideration, the Commission concludes that its concerns about the "add in" approach can be addressed by directing the ERO to modify Requirement R3 of the Reliability Standard to specify a comprehensive and rigorous test that all planning coordinators must use to identify all critical facilities.

In the NOPR, the Commission explained that PRC-023-1 must apply to relay settings on all critical facilities between 100 kV and 200 kV for it to achieve its intended reliability objective. The Commission also stated that planning coordinators must use a process to carry out Requirement R3 that is consistent across regions and robust enough to identify all facilities that should be subject to the Reliability Standard. The Commission expressed concern, however, that NERC's "add in" approach could effectively exempt from the Reliability Standard's Requirements a large percentage of facilities that should otherwise be subject to the Standard. Since NERC did not propose any test for the Commission to consider, the

59 Examples of such facilities include black start generation and the "cranking path" from the generators to the bulk electric system.

Commission proposed the “rule out” approach to ensure that planning coordinators identify all critical facilities between 100 kV and 200 kV.

After reflecting on the rationale behind the “rule out” approach — namely, the goal of ensuring that planning coordinators identify all critical facilities between 100 kV and 200 kV — and considering the comments, the Commission concluded that, from a reliability standpoint, it should not matter whether PRC-023-1 employs an “add in” approach or a “rule out” approach because both approaches should ultimately result in the same list of critical facilities. In other words, given a uniform and robust test, the facilities that would be “added in” under an “add in” approach should be the same as the facilities that would remain subject to the Reliability Standard after non-critical facilities are ruled out under the “rule out” approach. Instead of the Commission concerning itself with the merits of an “add in” or “rule out” approach, the Commission will focus on the test methodology that a planning coordinator uses to either “add in” or “rule out” a facility. If that test is lacking, PRC-023-1’s reliability objective will not be achieved regardless of whether an “add in” approach or a “rule out” approach is adopted. Consequently, the Commission declines to adopt the NOPR proposal and will not require the ERO to adopt the “rule out” approach. Instead, the Commission directs the ERO to modify Requirement R3 of the Reliability Standard to specify the test that planning coordinators must use to identify all critical facilities.

In light of the Commission’s decision, the Commission does not need to address commenters’ objections to the “rule out” approach or speculation about the number of 100 kV-

200 kV facilities that are critical to the reliability of the Bulk-Power System. Nevertheless, the Commission does not accept the claim that if PRC-023-1 had been in effect at the time of the August 2003 blackout, it would have prevented the 345 kV lines from tripping and therefore prevented the 100 kV-200 kV lines from tripping. The Commission also disagrees with commenters' claim that the majority of facilities between 100 kV and 200 kV are unlikely to contribute to cascading outages at higher voltages.

The Commission disagrees with commenters' assertion that if PRC-023-1 had been in effect at the time of the August 2003 blackout, it would have prevented the 345 kV lines from tripping and therefore prevented the 100 kV-200 kV lines from tripping. On the day of the blackout, the Harding-Chamberlin, Hanna-Juniper, and Star-South Canton 345 kV lines all tripped in a span of less than 45 minutes. Each of these lines tripped and locked out because of contact with an overgrown tree.[60] As each line failed, its outage increased the load on the remaining 138 kV and 345 kV lines, including the 345 kV Sammis-Star line,[61] and shifted power flows to other transmission paths. Starting at 15:39 EDT, the first of an eventual sixteen 138 kV lines began to fail. The tripping of these 138 kV lines occurred because the loss of the combination of the Hardin-Chamberlin, Hanna-Juniper, and Star-South Canton 345 kV lines overloaded the 138 kV system with electricity flowing toward the Akron and Cleveland loads.[62] In other words, the cascade of 138 kV lines was precipitated by faults caused by tree contact, not protective relays, and would not have been prevented if PRC-023-1 had been in effect before the blackout.

As the 138 kV lines opened, they blacked out customers in Akron and in the area west and south of Akron, ultimately dropping about 600 MW of load.[63] Even this load shedding was not enough to offset the cumulative effect of the 138 kV line outages on the increased loadings of the 345 kV Sammis-Star line. The Sammis-Star line tripped at 16:05:57 EDT and triggered a cascade of interruptions on the high voltage system, causing electrical fluctuations and facility trips such that within seven minutes the blackout rippled from the Cleveland-Akron area across much of the northeast United States.[64]

Unlike the Hardin-Chamberlin, Hanna-Juniper, and Star-South Canton lines, which tripped because of tree contact, the Sammis-Star line tripped due to protective zone 3 relay action that measured low apparent impedance (depressed voltage divided by abnormally high line current).[65] There was no fault and no major power swing at the time of the trip; rather, high flows above the line's emergency rating together with depressed voltage caused the overload to appear to the protective relays as a remote fault on the system.[66] In effect, the relay could no

60 Final Blackout Report at 57-61; 63-64.
61 Id. at 70.
62 Id. at 69-70.
63 Id. at 68.
64 Id. at 74.
65 Id. at 77-78. See Figure 6.4.
66 Id. at 77.

longer differentiate between a remote three-phase fault and an exceptionally high loading condition. The relay operated as it was designed to do.[67]

To the extent that commenters' argument is that PRC-023-1 would have prevented the loss of the Sammis-Star line, and therefore the subsequent spread of the blackout, the Commission does not think that it is possible to definitively reach these conclusions on the present record. Requirement R1 of PRC-023-1 directs entities to evaluate relay loadability at 0.85 per unit voltage and a power factor angle of 30 degrees. In other words, purely from the power factor angle viewpoint, the Sammis-Star line trip may still have occurred even if the relay loadability evaluation requirement of 30 degrees was met.

Consequently, the Commission believes that it is not possible to conclude whether the Sammis-Star line would have tripped on loadability if PRC-023-1 had been in effect without first setting its zone 3 relay pursuant to PRC-023-1 and then validating the setting against the voltages, currents, and power factor angles that were recorded during the August 2003 Blackout. In fact, it is the Commission's view that a similar process should be followed for the 345 kV lines in Michigan that tripped following the loss of Sammis-Star line to determine whether PRC-023-1 would have prevented the blackout.

The Commission also disagrees with commenters' assertion that that majority of facilities between 100 kV and 200 kV are unlikely to contribute to cascading outages at higher voltages. Prior to the dynamic cascading stage that began with the loss of the 345 kV Sammis-Star line, when the system was still in a marginally stable operating state (albeit not within IROLs, as shown in Figure 5.12 in the Final Blackout Report), it was the loss of several 138 kV facilities that contributed to the subsequent increased loading on the 345 kV Sammis-Star line and resulted in its tripping.[68] A more recent example of a cascade initiating at the 138 kV voltage level and spreading to higher voltages is the Florida Power and Light 2008 blackout event. This event started at the 138 kV level and cascaded into additional 138 kV, 230 kV, and 500 kV facilities. Because the operation of the protective relay is dependent on the apparent impedance, i.e. voltage and current quantities as measured by the relay irrespective of voltage class, application of PRC-023-1 at only the higher voltage would not have prevented these events. The Commission believes that only a valid assessment with an acceptable set of test criteria could determine whether 100 kV-200 kV facilities are critical facilities, and therefore whether they need to be set pursuant to PRC-023-1 to prevent such undesirable system performance.

Finally the Commission agrees with APPA that cascading outages at higher voltages are unlikely to be arrested by relay action at lower voltages. Reliability Standard PRC-023-1 is for preventing inadvertent tripping of Bulk-Power System facilities which could then initiate cascading outages at any voltage level, and not for arresting cascading outages.

"Add in" Approach to Sub-100 kV Facilities

67 Id.

68 Final Blackout Report at 64.

With respect to sub-100 kV facilities, the Commission adopts the NOPR proposal and directs the ERO to modify PRC-023-1 to apply an "add in" approach to sub-100 kV facilities that are owned or operated by currently-Registered Entities or entities that become Registered Entities in the future, and are associated with a facility that is included on a critical facilities list defined by the Regional Entity.[69] The Commission is also directing that additions to the Regional Entities' critical facility list be tested for their applicability to PRC-023-1 and made subject to the Reliability Standard as appropriate.

Most of the comments opposing the Commission's proposal regarding sub-100 kV facilities relate to what commenters perceive to be the Commission's view of the relationship between individual Reliability Standards and the Compliance Registry. For example, NERC argued that the Commission mischaracterized the nature and purpose of the Compliance Registry by suggesting that entities on the Registry must comply with all Reliability Standards for all of their facilities without regard to the applicability provisions of individual Standards. The Commission did not intend to create this impression. The Commission agrees with NERC that the Compliance Registry does not specify which entities must comply with any particular Reliability Standard. Rather, the applicability provision of each individual Standard specifies the categories of entities, i.e., functions, and at times the categories of facilities that are subject to it.

The Commission also agrees with TAPS and APPA that it is possible, at least in theory, that a sub-100 kV facility that has been identified by a Regional Entity as critical for the purposes the Compliance Registry might not be "critical" with respect to PRC-023-1. Thus, the Commission clarifies that it will not require the modified Reliability Standard to apply to all sub-100 kV facilities that have been identified by Regional Entities as critical facilities, but only to those that have been identified by Regional Entities as critical facilities and are also identified by planning coordinators, pursuant to the test directed to be developed herein, as critical to the reliability of the Bulk-Power System. In other words, the modification that the Commission directs in the Final Rule extends the scope of the Reliability Standard to include any sub-100 kV facility that is: (1) owned or operated by a currently-Registered Entity or an entity that becomes a Registered Entity in the future; (2) associated with a facility that is included on a critical facilities list defined by the Regional Entity; (3) employing load-responsive phase protection relays in its protection system(s); and (4) identified by the test directed to be developed herein.[70]

Along these same lines, ERCOT, SWTDUG, and TAPS are concerned that the Commission's proposal will require non-registered public power entities with sub-100 kV facilities to become Registered Entities. As the Commission has indicated, the Final rule applies only to sub-100 kV facilities that are owned or operated by currently-Registered Entities or

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69 As mentioned above, section III.d.2 of the Statement of Compliance Registry Criteria defines "transmission owner/operator" as: "[a]n entity that owns/operates a transmission element below 100 kV associated with a facility that is included on a critical facilities list defined by the Regional Entity."

70 Consistent with Order No. 716, the Commission expects that sub-100 kV facilities that are needed to supply the auxiliary power system of a Nuclear Power plant will be included in both determinations. See Mandatory Reliability Standard for Nuclear Plant Interface Coordination, Order No. 716, 125 FERC ¶ 61,065 (2008), at P 51-53, order on reh'g, Order No. 716-A, 126 FERC ¶ 61,122 (2009).

entities that become Registered Entities in the future, and are associated with a facility that is included on a critical facilities list defined by the Regional Entity; it is not intended to supplant the process that Regional Entities use to determine if a sub-100 kV facility should be identified as a critical facility or if an entity should be a Registered Entity.

Similarly, the Commission's purpose is not to extend the definition or the scope of the bulk electric system sub rosa; it is to ensure that PRC-023-1 applies to all critical facilities as identified in the applicability section so that the Reliability Standard can achieve its reliability objective. Consequently, the Commission does not intend to require any non-Registered Entity to register on account of PRC-023-1. Nevertheless, there might be sub-100 kV facilities that are owned or operated by non-Registered Entities that are identified by planning coordinators, pursuant to the test directed to be developed as stated in the Final Rule, as critical facilities. While the Commission does not require that these entities become Registered Entities solely due to PRC-023-1, if a planning coordinator applying the test directed to be developed in the Final Rule identifies a sub-100 kV facility that belongs to a non-Registered Entity as a critical facility, the Commission expects that the planning coordinator will inform the Regional Entity and that the Regional Entity will consider this information in light of its existing registration guidelines and procedures.[71] Similarly, the Commission expects that Regional Entities will consider this information when determining whether a sub-100 kV facility should be included in a regional definition of the bulk electric system.[72]

With respect to ISO New England's request for confirmation that the Commission does not intend to create an enforceable obligation against Regional Entities by directing them to undertake—solely for the purpose of compliance with PRC-023-1—a process to determine which sub-100 kV facilities are critical to the reliability of the Bulk-Power System, it should be clear from what the Commission has already indicated that it does not intend to create such an obligation. As the Commission has explained, the Final Rule requires planning coordinators, not Regional Entities, to determine which sub-100 kV facilities should be subject to the Reliability Standard. Moreover, the Commission agrees with ISO New England's assertion that Regional Entities have already been delegated by NERC the role of designating critical sub-100 kV facilities as part of the Compliance Registry process.[73]

Some commenters questioned the technical basis for extending PRC-023-1 to sub-100 kV facilities. For example, EEI argued that because it usually requires multiple 69 kV lines to

71 In general, we expect that the results of the planning coordinator analysis and the processes used by the Regional Entities to identify critical facilities would have similar outcomes.

72 The Commission notes that the definition of the bulk electric system is subject to change. See Order No. 693, FERC Stats. & Regs. ¶ 31,242 at P 77.

73 ISO New England at 3. See also Order No. 693, FERC Stats. & Regs. ¶ 31,242, at P 101.

replace one 138 kV line, it is highly unlikely that sub-100 kV facilities will cause a major cascade and much more likely that sub-100 kV facilities will trip to end a cascade, as occurred during the August 2003 blackout. EPSA argued that the Commission should apply "Reliability Engineering" to determine whether there is a technical basis for its proposal. SWTDUG and TAPS argued that the Final Blackout Report does not support extending the Reliability Standard to relay settings on sub-100 kV facilities.

The Commission will not follow EPSA's suggestion to use Reliability Engineering to identify critical facilities. In the Commission's view, it is more appropriate to identify critical sub-100 kV facilities (and, for that matter, critical 100 kV-200 kV facilities) by using established criteria specific to the electric industry.[74] The TPL Reliability Standards establish desired system performance requirements specific to a set of contingencies under a set of base cases that cover critical system conditions of the Bulk-Power System, while Reliability Engineering, as described by EPSA, is primarily used in reliability-centered maintenance to assess the optimum intervals and practices for facility maintenance. The Commission strongly believes that, for the purposes of PRC-023-1, it is appropriate to use requirements that are specific to the electric industry and that are supported by decades of foundational planning and operating principles and experiences and that are embedded in the TPL Reliability Standards rather than criteria that may be more appropriate to maintenance practices.

The Commission also rejects EEI's claim that there is no technical basis for extending PRC-023-1 to sub-100 kV facilities. Relay settings on such facilities should be subject to PRC-023-1 because their loss can also affect the reliability of the Bulk-Power System. The Commission also rejects TAPS's assertion that the Commission must exclude sub-100 kV facilities since the Commission is required under section 215(d)(2) of the FPA to give "due weight" to the technical expertise of the ERO. NERC has not provided a sufficient technical justification to support the exclusion of sub-100 kV facilities. In its comments, NERC stated that extending PRC-023-1 to sub-100 kV facilities "may have merit" and "would require further study,"[75] indicating that it did not affirmatively consider subjecting certain sub-100 kV facilities to the Reliability Standard and then reject the idea on the basis of its technical expertise. Moreover, NERC has not offered a technical basis for opposing the Commission's proposal. NERC's comments on the Commission's proposal pertain exclusively to the relationship between the Compliance Registry and entities' obligations to comply with Reliability Standards. Contrary to TAPS's assertion, NERC does not offer a technical argument against including certain sub-100 kV facilities in PRC-023-1.

Similarly, with respect to EEI's and NERC's claim that any expansion of the Reliability Standard must be developed through the Reliability Standards development process, the

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74 EPSA states that "Reliability Engineering" is currently used to develop modeling and maintenance strategies for complex systems, including multiple failure
testing, which has been applied to systems such as oil pipelines and civil infrastructures. EPSA at 6.

75 NERC Comments at 18.

Commission clarifies that, as with its other directives in the Final Rule, the Commission does not prescribe this specific change as an exclusive solution to the Commission's reliability concerns regarding sub-100 kV facilities. As the Commission has stated, the ERO can propose an alternative solution that it believes is an equally effective and efficient approach to addressing the Commission's reliability concerns about the absence of sub-100 kV facilities from PRC-023-1. Moreover, while the Commission expects planning coordinators to use the same test to identify critical sub-100 kV facilities as they use to identify critical 100 kV-200 kV facilities, the ERO is free, pursuant to Order No. 693, to propose a modified Reliability Standard that contains a different test for sub-100 kV facilities, provided that the test represents an "equivalent alternative approach."

9. EXPLAIN ANY PAYMENT OR GIFTS TO RESPONDENTS

No payments or gifts have been made to respondents.

10. DESCRIBE ANY ASSURANCE OF CONFIDENTIALITY PROVIDED TO RESPONDENTS

The Commission generally does not consider the data filed to be confidential. However, certain standards may have confidentiality provisions in the standard.

Section 215(e) of the FPA as well as section 39.7(d) of the Commission's regulations regarding enforcement of Reliability Standards provides for public notice and opportunity for a hearing with respect to both the ERO (or Regional Entity) enforcement proceedings and proceedings before the Commission involving review of a proposed penalty for violation of a reliability standard. Section 39.7(b)(4) provides a limited exception to this notice requirement and allow non-public proceedings for enforcement actions that involve a Cybersecurity Incident,[76] unless FERC determines on a case-by-case basis that such protection is not necessary. The Commission has in place procedures to prevent the disclosure of sensitive information, such as the use of protective orders and rules establishing critical energy infrastructure information (CEII). However, the Commission believes that the specific, limited area of Cybersecurity Incidents requires additional protections because it is possible that system security and reliability would be further jeopardized by the public dissemination of information involving incidents that compromised the cybersecurity system of a specific user, owner or operator of the Bulk-Power System. In addition, additional information provided with a filing may be submitted with a specific request for confidential treatment to the extent permitted by law and considered pursuant to 18 C.F.R. 388.112 of FERC's regulations.

11. PROVIDE ADDITIONAL JUSTIFICATION FOR ANY QUESTIONS OF A SENSITIVE NATURE THAT ARE CONSIDERED PRIVATE.

76 The term "Cybersecurity Incident" is defined as a malicious act or suspicious event that disrupts, or was an attempt to disrupt, the operation of those programmable electronic devices and communications networks including hardware, software and data that are essential to the Reliable Operation of the Bulk-Power System.

There are no questions of a sensitive nature that are considered private.

12. ESTIMATED BURDEN OF COLLECTION OF INFORMATION

NOPR Proposal

In the NOPR the Commission proposed to approve one new Reliability Standard developed by NERC as the ERO. The proposed Reliability Standard PRC-23-1 did not require responsible entities to file information with the Commission. The Reliability Standard does require applicable entities to develop and maintain certain information, subject to audit by a regional entity. The Commission's burden estimate (below regarding the number of respondents) was based on the NERC Compliance Registry (see item no. 5), as of March 3, 2009.

Data Collection	No. of Respondents	No. of Responses	Hours Per Respondent	Total Annual Hours
FERC-725G				
M1 - TOs, GOs and DPs* must "have evidence" to show that each of its trans-mission relays are set according to Requirement R1	450	1	Reporting: 0 Recordkeeping: 100	Reporting: 0 Recordkeeping: 45,000
M2 – Certain TOs, GOs and DPs must have evidence that a facility rating was agreed to by PA, TOP and RC	166	1	Reporting: 0 Recordkeeping: 10	Reporting: 0 Recordkeeping 1,660
M3 - PC must document process for determining critical facilities and (2) a current list of such facilities	79	1	175	13,825
Total				60,485

<u>Total Annual hours for Collection: (Reporting + recordkeeping)= 60,485hours.</u>

*TO – Transmission Owners; GO – Generator Owner; DP – Distribution Provider; PA – Planning Authority; PC – Planning Coordinators; RC – Reliability Coordinator; TOP – Transmission Operators.

Several commenters expressed concern with the burden to be imposed by the Reliability Standard. Some of these comments addressed the Reliability Standard's potential impact on small entities; because these comments are also the subject of the analysis performed under the Regulatory Flexibility Act, the Commission has provided a response under that section of the rulemaking and addressed in item no. 5 of this submission. Other comments questioned the Commission's initial burden estimate.

APPA argued that the Commission has grossly underestimated the Public Reporting Burden and requested that the Commission develop a more accurate estimate. APPA noted that the Commission provided a breakdown by category of registered entities for a total of 1,717 entities, but then asserted that only 525 entities will be subject to PRC-023-1 as proposed by NERC. APPA stated that it cannot assess how the Commission came up with this lower number, as the Commission provided no explanation of its methodology or the data it used to reach this conclusion. APPA stated that the Commission's initial estimate appears to be based on the Reliability Standard as proposed by NERC, and therefore fails to account for the Commission's proposals to expand the Standard's applicability. APPA argued that the Commission must assess the Public Reporting Burden created by its proposals.

APPA also claimed that the Commission's estimate of labor costs is so low as to be completely erroneous for burden evaluation purposes. Based on an informal survey of its members that own or operate transmission facilities above 100 kV, APPA stated that 21 out of nearly 300 registered public power utilities would need to evaluate 791 terminals to comply with the Commission's proposals. At an estimated cost of between $500 and $1,200 per location, APPA estimated that the cost of compliance for these 21 members would be between $395,500 and $949,200; in contrast to the Commission's estimate of $2,419,400 for the entire industry. APPA added that entities will need seasoned and expensive electrical engineers and outside consultants to comply with the Commission's proposals, not file/record clerks who are paid $17 per hour or supervisory personnel who are paid $23 per hour. APPA reports that one of its members estimated that it would have to use engineers, managers and even director-level personnel to carry out the required tasks, at an estimated cost of $55–$75 per hour. APPA expects that the cost of external consultants could reach $200 per hour.

BPA stated that the loaded cost for an engineer is approximately $80 per hour, twice the $40 per hour the Commission estimated for a file clerk and a supervisor. BPA observes that this would double the estimated annual cost of the Reliability Standard to $4,838,800. BPA also questioned the estimate of 100 hours annually for each respondent to comply with Requirement R1. BPA stated that it could take thousands of hours for larger utilities.

EEI argued that the Commission's estimate of hours for reporting and recordkeeping substantially underestimates the actual cost, in both time and money, required to comply with the Commission's modifications. EEI reported that one smaller investor-owned utility has estimated that it would take 4-8 hours of engineering time, per relay terminal, to review the more than 850 line terminals on its system operated between 100 kV and 200 kV. EEI stated that it would take an additional 6-12 hours of engineering time per terminal if, as the utility expects, about one third of its line terminals require mitigation, and another 6-12 hours of operations and maintenance staff hours to implement relay settings for terminals requiring mitigation.

EEI asserted that it could cost $40,000 to replace each terminal in order to comply with the Commission's modifications. EEI stated that there are more than 100,000 line terminals in the U.S. on facilities between 100 kV and 200 kV that would have to be checked if the Commission adopts a "rule out" approach. EEI estimated that this review could take 1.5 million labor hours, and another 750,000 hours if just one-half of the terminals must be replaced. EEI stated that the aggregate cost to replace these terminals could exceed $2.4 billion.

Commission Response

Given the Commission's decision not to adopt the "rule out" approach, most of these comments are no longer relevant. However, in response to the comments that remain relevant, and upon further review, the Commission has revised its initial estimates as explained in item no. 13 below.

As Revised in Final Rule

Data Collection	No. of Respondents	No. of Responses	Hours Per Respondent	Total Annual Hours
FERC-725G	678	1	Reporting: 0 Recordkeeping: 500.295	339,200
Total				339,200

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

NOPR Proposal

Information Collection Costs: The Commission sought comments on the costs to comply with these requirements. It has projected the average annualized cost for the total hours as follows:
Recordkeeping = 60,485@ $40/hour = $2,419,400.
Labor (file/record clerk @ $17 an hour + supervisory @ $23 an hour)
Total costs = $2,419,400.

Since many of the comments the Commission received estimated costs based on the "rule out" approach, they are no longer applicable given the Commission's decision in the Final Rule not to require the "rule out" approach. However, some commenters argued, apart from the "rule out" approach, that the NOPR underestimated the hours required to comply and the estimated cost of labor. After further consideration, with respect to the costs of labor, the Commission agrees that the $40/hour estimate for file/record clerks and supervisory employees is not correct. The Commission also agrees with commenters that electrical engineers will be required to comply with PRC-023-1. Therefore, the Commission has revised estimates as indicated below:

- Number of line terminals to be reviewed: 53,000
- Number of hours per terminal: 6.4
- Hourly rate for review by engineers: $120

Total Cost for review = (terminals to be reviewed x hours per terminal) x hourly rate for review by engineers = (53,000 x 6.4) x ($120/hour) = 339,200 hours x 120/hour = $40,704,000

14. ESTIMATED ANNUALIZED COST TO FEDERAL GOVERNMENT

The estimate of the cost to the Federal Government is based on salaries for professional and clerical support, as well as direct and indirect overhead costs. Direct costs include all costs directly attributable to providing this information, such as administrative costs and the cost for information technology. Indirect or overhead costs are costs incurred by an organization in support of its mission. These costs apply to activities which benefit the whole organization rather than anyone particular function or activity.

Initial Estimates anticipate that 3.5 FTE's will review this Reliability Standard and its requirements. The Commission's total cost is 3.5 x $137,874 = $482,559.50.[77]

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

This Final Rule proposes to approve one new Reliability Standard developed by NERC as the ERO. Section 215 of the FPA authorizes the ERO to develop Reliability Standards to provide for the operation of the Bulk-Power System. Pursuant to the statute, the ERO must submit to the Commission for approval each Reliability Standard that it proposes to be made effective. The Transmission Relay Loadability Reliability Standard, as 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, PRC-023-1 will ensure that protective relays are set according to specific criteria to ensure that relays reliably detect and protect the electric network from all fault conditions, but do not limit transmission loadability or interfere with system operator's ability to protect system reliability.

16. TIME SCHEDULE FOR THE PUBLICATION OF DATA

The filed proposed Reliability Standards are available on the Commission's eLibrary document retrieval system (http://elibrary.ferc.gov/idmws/search/fercgensearch.asp) in Docket No. RM08-13-000 and in addition, the Commission requires that all Commission-approved Reliability Standards be available on the ERO's website, with an effective date, (http://www.nerc.com/~filez/nerc_filings_ferc.html) .

77 An FTE = Full Time Employee. The $137,874 "cost" consists of approximately $110,299.44 in salaries and benefits and $27,574.61 in overhead. The Cost estimate is based on the estimated annual allocated cost per Commission employee for Fiscal Year 2010.

Copies of the filings are made available to the public within two days of submission to FERC via the Commission's web site. There are no other publications or tabulations of the information.

17. **DISPLAY OF THE EXPIRATION DATE**

It is not appropriate to display the expiration date for OMB approval of the information collected. The information will not be collected on a standard, preprinted form which would avail itself to that display. Rather the Electric Reliability Organization must prepare and submit filings that reflect unique or specific circumstances related to the Reliability Standard. In addition, the information contains a mixture of narrative descriptions and empirical support that varies depending on the nature of the transaction.

18. **EXCEPTIONS TO THE CERTIFICATION STATEMENT**

Item No. 19(g) (vi) see Instruction No. 17 above for further elaboration. In addition, the data collected for this reporting requirement is not used for statistical purposes. Therefore, the Commission does not use as stated in item no. 19(i) "effective and efficient statistical survey methodology." The information collected is case specific to each Reliability Standard.

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS.

This is not a collection of information employing statistical methods.