

128 FERC ¶ 61,060  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Chapter I

[Docket No. PL09-4-000]

Smart Grid Policy

(Issued July 16, 2009)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Policy Statement

SUMMARY: This Policy Statement provides guidance regarding the development of a smart grid for the nation's electric transmission system, focusing on the development of key standards to achieve interoperability and functionality of smart grid systems and devices. In response to the need for urgent action on potential challenges to the bulk-power system, in this Policy Statement the Commission provides additional guidance on standards to help to realize a smart grid. The Commission also adopts an Interim Rate Policy for the period until interoperability standards are adopted by the Commission, which will encourage investment in smart grid systems.

EFFECTIVE DATE: The Interim Rate Policy will become effective [Insert\_Date60 days after publication in the **FEDERAL REGISTER**].

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SUPPLEMENTARY INFORMATION:

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Smart Grid Policy

Docket No. PL09-4-000

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128 FERC ¶ 61,060  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;  
Sudeen G. Kelly, Marc Spitzer,  
and Philip D. Moeller.

Smart Grid Policy

Docket No. PL09-4-000

POLICY STATEMENT

(Issued July 16, 2009)

1. On March 19, 2009, the Commission issued a Proposed Policy Statement and Action Plan to guide the development of key standards for smart grid devices and systems.<sup>1</sup> Many companies in the electricity industry are designing and deploying such devices and systems with the objective of achieving greater interoperability and functionality of the nation's electric transmission grid. In the Proposed Policy Statement, the Commission also put forth the notion of an interim rate policy to guide rate recovery while interoperability standards are adopted (Interim Rate Policy). Comments were invited on all aspects of the Proposed Policy Statement. On May 19, 2009, the Commission issued a notice requesting supplemental comments on one additional feature of the Interim Rate Policy.<sup>2</sup>

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<sup>1</sup> Smart Grid Policy, 126 FERC ¶ 61,253 (2009) (Proposed Policy Statement).

<sup>2</sup> Smart Grid Policy, 127 FERC ¶ 61,139 (2009) (Notice Requesting Supplemental Comments).

This Policy Statement generally adopts the proposals enumerated in the Proposed Policy Statement and provides additional guidance for standards that will help realize a smart grid.

## **I. Background**

2. As the Commission explained in the Proposed Policy Statement, the Commission's jurisdiction over the transmission system derives from provisions of the Federal Power Act (FPA) relating to the transmission of electric energy in interstate commerce by public utilities, and to the reliable operation of the bulk-power system.<sup>3</sup> An additional responsibility was assigned by the Energy Independence and Security Act of 2007 (EISA)<sup>4</sup> directing the Commission to initiate a rulemaking proceeding to adopt standards and protocols related to smart grid functionality and interoperability.<sup>5</sup>

3. EISA lays out the policy of the United States with regard to modernization of the nation's electricity transmission and distribution system in order to maintain a reliable and secure electricity infrastructure that can meet future demand growth and achieve a number of goals characterizing a smart grid.<sup>6</sup> EISA also directs the National Institute of

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<sup>3</sup> 16 U.S.C. 824, 824o (2006).

<sup>4</sup> Public Law No. 110-140, 121 Stat. 1492 (2007).

<sup>5</sup> EISA sec. 1305(d), to be codified at 15 U.S.C. 17385(d).

<sup>6</sup> EISA sec. 1301, to be codified at 15 U.S.C. 17381. Among these goals and characteristics are deployment or realization of: digital information and technology to improve reliability, security and efficiency; cybersecurity; distributed resources and generation; demand response; "smart" technologies for optimal grid operations and distribution automation; "smart" appliances; electricity storage; consumer information

Standards and Technology (the Institute) to coordinate the development of a framework to achieve interoperability of smart grid devices and systems, including protocols and model standards for information management.<sup>7</sup> The Commission explained in the Proposed Policy Statement that, in order to achieve the smart grid characteristics and functions described in EISA, interoperability of smart grid equipment will be essential.<sup>8</sup>

4. Once the Commission is satisfied that the Institute's work has led to "sufficient consensus" on interoperability standards, EISA directs the Commission to "institute a rulemaking proceeding to adopt such standards and protocols as may be necessary to insure smart-grid functionality and interoperability in interstate transmission of electric power, and regional and wholesale electricity markets."<sup>9</sup> In the Proposed Policy Statement, the Commission described some of the Institute's efforts to date, as well as its projected work, to develop a framework for interoperability standards, and sought

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and control; and communication and interoperability standards.

<sup>7</sup> EISA sec. 1305(a), to be codified at 15 U.S.C. 17385(a). In this Policy Statement, we refer to the Institute's process as both the coordination and the development of standards. The Institute's primary function with regard to smart grid is to be a coordinator for the variety of smart grid standards development initiatives.

<sup>8</sup> Interoperability is described as exchanging meaningful information between two or more systems and achieving an agreed expectation for the response to the information exchange while maintaining reliability, accuracy, and security. See GridWise Architecture Council, Interoperability Path Forward Whitepaper, [http://www.gridwiseac.org/pdfs/interoperability\\_path\\_whitepaper\\_v1\\_0.pdf](http://www.gridwiseac.org/pdfs/interoperability_path_whitepaper_v1_0.pdf).

<sup>9</sup> EISA sec. 1305(d).

comment on the most effective and efficient ways for the Commission and the Institute to interact in the ongoing standards development processes.

5. In the Proposed Policy Statement, the Commission identified several potential challenges to the reliable operation of the Commission-jurisdictional bulk-power system and the smart grid functions and characteristics that could help address those challenges. The major challenges identified include: existing cybersecurity issues;<sup>10</sup> issues associated with changes to the nation's generation mix,<sup>11</sup> including an increasing reliance on variable renewable generation resources;<sup>12</sup> and issues that could arise with increased and more variable electricity loads associated with transportation technology.<sup>13</sup> In addition to these challenges, we incorporated the Institute's assessment that there is an overarching need for standardization of communication and coordination across inter-system interfaces.<sup>14</sup>

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<sup>10</sup> Proposed Policy Statement, 126 FERC ¶ 61,253 at P 13.

<sup>11</sup> On May 13, 2009, the Commission announced that it had commissioned the Lawrence Berkeley National Laboratory to use frequency response to help assess the potential for the reliable integration of wind and other renewable energy resources into the bulk-power system. The frequency study has three main objectives: (1) determining if frequency response is an appropriate metric to assess the reliability effects of integrating renewables, (2) using the resulting metric to assess the reliability impact of various levels of renewables on the grid, and (3) identifying what further work and studies are necessary to quantify and mitigate any negative effects on reliability associated with the integration of renewables.

<sup>12</sup> Proposed Policy Statement, 126 FERC ¶ 61,253 at P 17-20.

<sup>13</sup> *Id.* P 21-22.

<sup>14</sup> National Institute of Standards and Technology, Smart Grid Issues Summary

6. In response to the need for urgent action on these potential challenges to the bulk-power system, the Commission identified and asked for comments on several areas it proposed as deserving high priority in the smart grid interoperability standards development process, including two cross-cutting issues (cybersecurity and physical security to protect equipment that can provide access to smart grid operations, and a common information framework), and four key grid functionalities (wide-area situational awareness, demand response, electric storage, and electric transportation). The Commission also proposed the Interim Rate Policy to encourage investment in smart grid technologies intended to address potential challenges to the bulk-power system through the advancement of efficiency, security, reliability, and interoperability. The Interim Rate Policy provides that smart grid investments that demonstrate system security and compliance with Commission-approved Reliability Standards,<sup>15</sup> the ability to be upgraded, and other specified criteria will be eligible for timely rate recovery and other rate treatments.

7. The May 19 Notice Requesting Supplemental Comments sought additional input regarding potential actions that the Commission could take to insure that public utilities may qualify for awards under certain Department of Energy funding programs related to jurisdictional facilities. On the same day of the issuance of our Proposed Policy

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(2009).

[http://collaborate.nist.gov/twiki-sggrid/pub/SmartGrid/TnD/Draft\\_NIST\\_Smart\\_Grid\\_Issues\\_Summary\\_10March2009.pdf](http://collaborate.nist.gov/twiki-sggrid/pub/SmartGrid/TnD/Draft_NIST_Smart_Grid_Issues_Summary_10March2009.pdf), at 1 and 4-5.

<sup>15</sup> Adopted under FPA sec. 215, 16 U.S.C. 824o.



Statement, the Department of Energy announced \$2.4 billion for electric vehicle demonstration and deployment projects.<sup>16</sup> On April 18, the Department of Energy announced another \$615 million for targeted demonstrations programs; one of three targets is “utility-scale energy storage demonstrations.”<sup>17</sup>

8. The Commission notes from its review of a recent report that the Institute is now using the Proposed Policy Statement to coordinate development of interoperability standards.<sup>18</sup>

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<sup>16</sup> See March 19, 2009 Department of Energy news release, President Obama Announces \$2.4 Billion for Electric Vehicles, [http://apps1.eere.energy.gov/news/daily.cfm/hp\\_news\\_id=159](http://apps1.eere.energy.gov/news/daily.cfm/hp_news_id=159). In this Policy Statement, “electric vehicle” refers to a vehicle that requires periodic re-charging of its propulsion battery from the electric grid; such a vehicle may or may not also be a “hybrid,” additionally capable of re-charging with a fuel-driven generator or by other mechanical means.

<sup>17</sup> See April 16, 2009 Department of Energy news release, Vice President Biden Outlines Funding for Smart Grid Initiatives, <http://www.energy.gov/news2009/7282.htm>.

<sup>18</sup> ? Don Von Dollen, Report to NIST on the Smart Grid Interoperability Standards Roadmap, Electric Power Research Institute (June 17, 2009) (Roadmap Report). See also Press Release, Electric Power Research Institute (June 17, 2009). For example, Chapter four reports on the collaborative work of the Institute, the contractor, and its subcontractors, and attendees at two conferences to develop use cases, interfaces, and requirements for the Commission’s four key grid functionalities identified in the Proposed Policy Statement: wide-area situational awareness, demand response, electric storage, and electric transportation. Two additional priority functionalities have also been identified that relate to those proposed by the Commission: AMI systems that relate to the need for metering standards are identified in the demand response discussion of the Roadmap Report and distribution grid management (related to distributed energy storage) is identified in both the electric storage and electric transportation discussions. In addition, Chapter five of the report is devoted to the cross-cutting issue of cybersecurity identified by the Commission. Chapter six addresses the Commission’s second cross-cutting issue of a prioritized need for common semantic models and other standardized communication elements.

## II. Discussion

9. Approximately 70 sets of comments were submitted from a broad array of interested parties.<sup>19</sup> In general, commenters support the Proposed Policy Statement, including the establishment of key priorities<sup>20</sup> identified therein, and the need for focused leadership over the process going forward. There is a greater diversity of comments on the Interim Rate Policy. Sixteen supplemental comments were submitted, exhibiting a split of opinion regarding whether to offer special procedures for rate recovery filings for utilities seeking funding through certain Department of Energy programs.

10. In this Policy Statement, the Commission adopts the key priorities for standards development that were identified in the Proposed Policy Statement. The Commission also adopts the Interim Rate Policy, as discussed below, and finds that there is no need for special procedures associated with rate recovery filings for projects that are also receiving Department of Energy grant funding.

11. A number of entities also comment on the standards development process and the Commission's interactions with the Institute and other bodies interested in the development of interoperability standards. The Commission will address these topics separately.

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<sup>19</sup> An alphabetical listing of all commenters and abbreviations for each is found at the end of this document at Appendix A.

<sup>20</sup> An area considered to be a "key priority" is proposed as the first level of work to be accomplished in the interoperability standards-setting process. Proposed Policy Statement, 126 FERC ¶ 61,253 at P 27.

**A. Jurisdictional Concerns**

12. In the Proposed Policy Statement, the Commission noted that its interest and authority in the area of smart grid derive from its authority over the rates, terms and conditions of transmission and wholesale sales in interstate commerce and its responsibility for Reliability Standards for the bulk-power system, as well as from EISA.<sup>21</sup> Specifically, the Commission has jurisdiction over the transmission of electric energy in interstate commerce by public utilities pursuant to FPA section 201, and over the reliable operation of the bulk-power system in most of the nation under FPA section 215.<sup>22</sup> Section 1305(d) of EISA directs the Commission to initiate rulemaking proceedings to adopt such standards and protocols as may be necessary to insure smart grid functionality and interoperability in interstate transmission of electric power, and in regional and wholesale electricity markets.<sup>23</sup>

Comments

13. Many commenters note a tension that the Proposed Policy Statement raises between federal jurisdiction and state jurisdiction and urge the Commission to clarify jurisdictional boundaries. Questions center on both standards adoption and applicability and whether deployed technology will be subject to state or federal rate authority.

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<sup>21</sup> Id., P 1.

<sup>22</sup> 16 U.S.C. 824, 824o.

<sup>23</sup> EISA sec. 1305(d), to be codified at 15 U.S.C. 17385(d).

14. A number of commenters maintain that EISA does not alter the fundamental parameters of the Commission's authority.<sup>24</sup> State commissions, other state authorities, and several utilities remark that the Commission should not encroach on traditional state jurisdiction.<sup>25</sup> The Michigan Commission maintains that implementing smart grid functionality and interoperability at the distribution level or in retail sales should be left to the states. Several entities are concerned by statements in the Proposed Policy Statement that, to those parties, indicate that the Commission may be extending its jurisdictional scope. In particular, commenters take issue with the suggestions that the potential reliability impacts of electric vehicles may afford the Commission some authority over distribution facilities, and certain devices related to the distribution system are eligible for cost recovery in wholesale rates because of some tangential impact on bulk-power operations due to interoperability issues.<sup>26</sup>

15. The Ohio Commission comments that, since interoperability standards encompass areas that are outside of the Commission's jurisdiction, the Commission should support the development of model standards through the Institute's process, resolving any impasses through the NARUC/FERC Smart Grid Collaborative, and that

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<sup>24</sup> See, e.g., Michigan Commission Comments at 6-7, Maryland Counsel Comments at 7-8, Ohio Commission Comments at 4, and Ohio Partners Comments at 2-3.

<sup>25</sup> See, e.g., California Commission Comments at 6, Ohio Commission Comments at 5-7, Massachusetts Attorney General Comments at 4-5, and SDG&E Comments at 22-23.

<sup>26</sup> Michigan Commission Comments at 8 and Maryland Counsel Comments at 5.

the Commission and states should adopt model standards to be applied within areas subject to their respective jurisdictions. In addition, states should be responsible for ensuring compliance with Commission-imposed guidelines and standards.<sup>27</sup>

16. The Ohio Commission and North Carolina Agencies note that not all states will want the same smart grid functionality deployed in the same manner, and comment that standards should accommodate different rate structures and policies. In contrast, NEMA and CURRENT appreciate national standardization, noting that the lack of a consistent national standard for interconnection has inhibited the development of distributed generation. NEMA and CURRENT urge the Commission to pursue nationwide standardization and encourage state commissions to develop policies akin to those in the Proposed Policy Statement. The Kansas Commission asks whether the Commission is suggesting that the federal government should implement guidelines governing the procedures for charging electric vehicles at night as one method for storing electricity.<sup>28</sup>

17. Various commenters request clarification or guidance in certain areas, notably (1) whether the Commission intends to implement mandatory protocols “in areas that are traditionally under state jurisdiction, such as the distribution network and behind-the-meter installations,”<sup>29</sup> (2) how the Commission intends to determine which portions of a smart grid are part of the bulk-power system and those which are part of the distribution

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<sup>27</sup> Ohio Commission Comments at 5-7.

<sup>28</sup> Kansas Commission Comments at 5-6.

<sup>29</sup> California Commission Comments at 6-7.

system,<sup>30</sup> (3) whether the Commission has the authority to specify physical layer standards<sup>31</sup> while preserving state ratemaking authority,<sup>32</sup> and (4) whether the Commission has the authority to mandate a nationwide meter communications protocol.<sup>33</sup>

18. Many commenters ask the Commission to clarify the boundaries between federal and state jurisdiction for rate recovery purposes. NARUC suggests that the approach should be to examine the location of the deployed technology. If such a technology resides on a Commission-jurisdictional line, then it should be regulated by this Commission. If it resides on a line regulated by states, then it should be subject to state oversight.<sup>34</sup> EEI highlights the need for this clarification, noting that specific smart grid equipment might be installed on either or both transmission and distribution facilities.<sup>35</sup>

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<sup>30</sup> Id. at 11.

<sup>31</sup> NEMA makes several references to physical connections and standards in its comments, including interconnection for distributed generation, and applications for intelligent customer energy management equipment. It is not clear in NEMA's comments whether this reference also applies to meters.

<sup>32</sup> NEMA Comments at 6.

<sup>33</sup> Id. at 7.

<sup>34</sup> NARUC Comments at 16, Maryland Counsel Comments at 5, and Springfield Comments at 10-11.

<sup>35</sup> EEI Comments at 14-15.

Indianapolis P&L asserts that the Commission should apply the seven factor test, set forth in Order No. 888,<sup>36</sup> to delineate between federal and state activities.<sup>37</sup>

19. NARUC is also concerned that the Commission's policies not allow double cost recovery, or allow Commission-jurisdictional entities to "bootstrap cost recovery for projects implemented within state jurisdiction."<sup>38</sup> The California Commission asserts that the Commission should acknowledge that state commissions are in the best position to address concerns as they pertain to retail customers and ratepayers.<sup>39</sup>

20. On the other hand, Ohio Commission states that cost recovery for the initial deployment of a demand response program should be at the state level. However, if such programs require later upgrading or replacement in order to meet model demand response standards approved by this Commission, then Ohio Commission argues that the

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<sup>36</sup> Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Order No. 888, FERC Stats. & Regs. ¶ 31,036, at 31,771 and 31,981 (1996), order on reh'g, Order No. 888-A, FERC Stats. & Regs. ¶ 31,048, order on reh'g, Order No. 888-B, 81 FERC ¶ 61,248 (1997), order on reh'g, Order No. 888-C, 82 FERC ¶ 61,046 (1998), aff'd in relevant part sub nom. Transmission Access Policy Study Group v. FERC, 225 F.3d 667 (D.C. Cir. 2000), aff'd sub nom. New York v. FERC, 535 U.S. 1 (2002).

<sup>37</sup> Indianapolis P&L Comments at 5-6.

<sup>38</sup> NARUC Comments at 13.

<sup>39</sup> California Commission Comments at 4, 12.

associated costs should be recovered on a socialized, national level in Commission-jurisdictional rates.<sup>40</sup>

21. Finally, a number of entities encourage the Commission to work together with the states, and in particular with the NARUC/FERC Smart Grid Collaborative, to sort out jurisdictional boundaries. Maryland Counsel and Ohio Partners comment that ongoing dialogues should include consumer advocacy organizations.

#### Commission Determination

22. The Commission agrees with those commenters who state that EISA does not alter the FPA's jurisdictional boundaries between federal and state regulation over the rates, terms, and conditions of transmission service and sales of electricity. EISA does not modify any of the provisions of the FPA. Nevertheless, EISA does give the Commission new responsibilities for the adoption of standards needed to insure smart grid functionality and interoperability. The legislation specifically directs the Commission to institute rulemaking proceedings to adopt standards necessary to insure "functionality and interoperability in interstate transmission of electric power, and regional and wholesale electricity markets."<sup>41</sup> The Commission understands this mandate to mean that the Commission has the authority to adopt a standard that will be applicable to all electric power facilities and devices with smart grid features, including those at the local distribution level and those used directly by retail customers so long as the standard

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<sup>40</sup> Ohio Commission Comments at 1, 10.

<sup>41</sup> EISA sec. 1301 and sec. 1305(d).



is necessary for the purpose just stated.<sup>42</sup> We reach this conclusion because Congress does not exclude from the scope of EISA 1305(d) facilities used in local distribution, or otherwise limit Commission authority to approve standards. Further, other provisions in EISA indicate that the smart grid interoperability framework is intended to include all

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<sup>42</sup> For example, two-way communications are a distinguishing characteristic of smart grid devices on both the transmission and distribution systems. This two-way communications capability is essential to the smart grid vision of interoperability, allowing the transmission and distribution systems to communicate with each other. They also affect the security and functionality of each other.

elements of the grid, including communications with the ultimate consumer.<sup>43</sup> EISA does not identify any segment of the interoperability framework that is not within the scope of standards to be promulgated. Accordingly, the Commission finds that EISA grants the Commission the authority to adopt smart grid standards—such as meter communications protocols or standards—that affect all facilities, including those that relate to distribution facilities and devices deployed at the distribution level, if the Commission finds that such standards are necessary for smart grid functionality and interoperability in interstate transmission of electric power, and in regional and wholesale electricity markets.

23. EISA, however, does not make any standards mandatory and does not give the Commission authority to make or enforce any such standards. Under current law, the Commission’s authority, if any, to make smart grid standards mandatory must derive from the FPA. Similarly, its authority to allow rate recovery of smart grid costs must derive from the FPA. The authority to adopt standards under EISA does not change the scope of the Commission’s ratemaking or reliability jurisdiction, as many commenters note.

24. In order to determine whether particular facilities are subject to state or federal jurisdiction for purposes of rate recovery, interested parties should refer to Commission precedent for guidance.<sup>44</sup> The Commission will evaluate particular facilities and projects

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<sup>43</sup> See, e.g., EISA sec. 1301 and sec. 1305(a) (stating that the framework should “enable all electric resources, including demand-side resources, to contribute to an efficient, reliable electricity network”) and sec. 1305(b).

<sup>44</sup> See, e.g., Detroit Edison Co., 95 FERC ¶ 61,415 (2001), order on reh’g,

on a case-by-case basis. In response to commenters' concerns, we recognize that it would be inappropriate for a utility to recover the same costs for a smart grid project twice, through state-approved retail rates and again in a proceeding before this Commission.

25. As the EISA mandate to adopt interoperability standards does not afford the Commission new economic regulatory authority over local distribution facilities themselves,<sup>45</sup> and does not provide any authority or directive to mandate standards, the Commission does not interpret EISA to allow it to direct states to implement any particular retail customer policies or programs. To the extent the Commission does adopt smart grid standards related to facilities outside the Commission's jurisdiction under the FPA, we agree with the Ohio Commission that states can insure compliance with any standards they deem applicable to their jurisdictions.

26. In response to the question posed by the Kansas Commission regarding whether the federal government should have guidelines governing the procedures for charging

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96 FERC ¶ 61,309 (2001). "[T]o the extent that any facilities, regardless of their original nominal classification, in fact, prove to be used by public utilities to provide transmission service in interstate commerce in order to deliver power and energy to wholesale purchasers, such facilities are subject to this Commission's jurisdiction and review." *Id.*, 95 FERC ¶ 61,415, at 62,535. Accord, Northeast Utilities Service Co., 107 FERC ¶ 61,246, at P 22 (2004).

<sup>45</sup> Similarly, the Commission's previous actions approving proposed North American Electric Reliability Corporation (NERC) reliability standards applicable to distribution providers and load serving entities to maintain the reliability and integrity of the bulk-power system did not, in and of themselves, confer Commission rate jurisdiction over those entities' local distribution facilities.

electric vehicles at night as one method for storing electricity, the Commission does not intend to issue policy guidelines for storing electric power by charging electric vehicles during off-peak load periods. Nevertheless, if the Institute's process results in a smart grid interoperability standard related to storing electric power by charging electric vehicles, the Commission would consider adoption of such a standard pursuant to EISA section 1305(d).

27. The Commission recognizes that states have an interest in the functionalities of smart grid technologies, as suggested by North Carolina Agencies and the Ohio Commission, and we encourage states to actively participate in the ongoing discussions being organized and facilitated by the Institute to insure that their perspectives are represented. We do not believe that Commission adoption of national standards for smart grid technologies should interfere with a state's ability to adopt whatever advanced metering or demand response program it chooses. Nor will Commission adoption of national standards affect the existing statutory framework for wholesale and retail pricing. Interoperability standards should be designed flexibly enough to support alternative programs and pricing policies being considered by a particular state. Indeed, national standards adopted by the Commission should enhance, not limit, the policy choices available to each state.

28. We believe that it is appropriate for the Commission to have a role in determining key priorities in the interoperability standards development process. The

Commission's leadership in this arena will help to expedite the development of functionalities that are important to federal energy policy (e.g., wide-area situational awareness to improve the reliability of the transmission grid) as well as to support programs that have emerged in many states (e.g., integrating renewable generation to permit utilities to meet state-mandated renewable portfolio requirements). We see great benefit from collaborating closely with states regarding flexibility in smart grid standards and adapting to new technologies, and we expect to work with the states to pursue these topics through the NARUC/FERC Smart Grid Collaborative.

**B. Development of Key Standards**

29. The purpose of this Policy Statement, among other things, is to prioritize the development of key interoperability standards to provide a foundation for the development of many other standards. The Proposed Policy Statement identified and requested comment on several key priorities the Commission believed were necessary to address existing and emerging challenges to the operation of the bulk-power system. These challenges included existing cybersecurity issues, large-scale changes in generation mix and capabilities, and large potential new load from electric vehicles. The proposed key priorities for standards development included two cross-cutting issues, system security and inter-system communication, and four key grid functionalities: (1) wide-area situational awareness, (2) demand response, (3) electric storage, and (4) electric transportation.<sup>46</sup> Each of these topics is discussed in detail in the following

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<sup>46</sup> Proposed Policy Statement, 126 FERC ¶ 61,253 at P 28.

sections. The Commission urges the Institute and interested parties to continue to focus their efforts on these key priorities first in order to achieve interoperability in a timely manner.

**1. System Security**

30. As explained below, the Commission adopts its Proposed Policy Statement position that cybersecurity is essential to the operation of the smart grid and that the development of cybersecurity standards is a key priority. Cybersecurity and physical security are ongoing concerns for both the Commission and the electricity industry and have received heightened attention as part of the creation of recent mandatory and enforceable federal standards. We believe that implementation of smart grid technology, which is designed to improve communication, coordination, and interoperability, will require added attention to cybersecurity standards.

31. To date, eight mandatory cybersecurity and physical critical infrastructure protection Reliability Standards (CIPS) have been approved by the Commission pursuant to section 215 of the FPA. The fact that a smart grid would permit two-way communication between the traditionally regulated components of the electric system and a large number of smart grid devices expected to be located beyond the conventional boundaries of regulated entities suggests that cybersecurity standards require special attention.

32. The Commission sought comment regarding whether cybersecurity should be considered a cross-cutting issue affecting interoperability that must be included in smart grid standards.<sup>47</sup> The Commission also proposed harmonizing cybersecurity and Reliability Standards as a precondition to the adoption of smart grid standards. The Commission further proposed to advise the Institute to undertake the necessary steps to assure that each standard and protocol that is developed as part of the Institute's interoperability framework is consistent with the overarching cybersecurity and reliability mandates of the EISA as well as existing Reliability Standards approved by the Commission pursuant to section 215 of the FPA.

#### Comments

33. Many commenters support system security as a priority.<sup>48</sup> For instance, APPA states that security-related concerns should be given the highest priority and that they should be harmonized with the NERC CIPS standards to avoid conflicts during the large-scale deployment of smart grid installations, while ITC Companies assert that cybersecurity is of paramount importance for the development of a smart grid.<sup>49</sup> ELCON recommends that the Commission use a "measured approach to smart grid deployment"

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<sup>47</sup> *Id.* P 12.

<sup>48</sup> NARUC Comments at 14, EEI Comments at 6, 11, NERC Comments at 10, and ITC Comments at 6.

<sup>49</sup> APPA Comments at 12 and ITC Companies Comments at 5-6.

so that relevant agencies and standards development organizations have time to overcome cybersecurity related technical issues.<sup>50</sup>

34. Some entities are concerned about whether there will be sufficient coordination among the Institute and other relevant federal and state agencies, and whether there will be a broader application of federal Reliability Standards on distribution facilities.<sup>51</sup> While several entities state that an open connectivity protocol should be developed through the Institute's standards coordination process to insure interoperability of cyber-secure smart grid components, some also support its development through a Commission-approved Reliability Standard. Other entities assert that secure protocols already exist and are available for adoption.<sup>52</sup>

35. On the matter of coordination with the Institute, EEI points out that cybersecurity should be addressed early on in the development and manufacturing process and that smart grid products should undergo thorough interoperability and cybersecurity testing and certification at all levels prior to installation and use by independent firms that have been accredited by the Institute.<sup>53</sup> NERC agrees that cybersecurity for smart grid technologies should be a top priority and advocates close coordination with the Institute to avoid jurisdictional overlaps. NERC recommends

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<sup>50</sup> ELCON Comments at 2.

<sup>51</sup> Michigan Commission Comments at 5-6, GridWise Alliance Comments at 9-10, and National Grid Comments at 4.

<sup>52</sup> ITC Companies Comments at 5-6 and PSEG Comments at 6-8.

<sup>53</sup> EEI Comments at 7.



adoption of Commission policies to encourage the Institute to use its role, as the smart grid standards proponent and coordinator, to build cybersecurity protections into standards that affect the full span of smart grid systems and devices, such as the distribution system, utilities' business systems, customer appliances, and information technology systems, with an eye towards aggregated impacts on the bulk-power system.<sup>54</sup>

36. The Michigan Commission counsels that the Commission should avoid being overly prescriptive in its standards until the Institute's process is complete and should undertake a "bottom up" collaborative process that includes the states, standards development organizations and other private actors to identify, up front, the reliability and security considerations that smart grid technologies must address while respecting the traditional statutory distinctions between state and federal jurisdiction over electricity.<sup>55</sup> NERC warns that the possible aggregate effects of smart grid devices that reach into the distribution system can have substantial impact on the security of the bulk-power system.<sup>56</sup>

37. With respect to sufficient specificity in the Proposed Policy Statement, CPower asserts that the Commission's objective should be to bar only significant gaps in cybersecurity.<sup>57</sup> ELCON suggests that more consistency and standardization are required with respect to authentication standards, physical protection standards, and the impact to

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<sup>54</sup> NERC Comments at 11-12.

<sup>55</sup> Michigan Commission Comments at 5-6.

<sup>56</sup> *Id.* at 11-12, 15.

<sup>57</sup> CPower Comments at 3.

the bulk-power system. GWAC argues that the Proposed Policy Statement should be expanded to address system architectures, define the classes of security requirements, and include risk management aspects, such as costs and potential consequences, instead of directing policy towards low-level details.<sup>58</sup> B-D Research contends that the definition of cybersecurity must be expanded to include matters such as (1) non-disruptive events, (2) unauthorized access to, or modification of, a critical system, (3) information leakage, and (4) system compromise.<sup>59</sup> E.ON offers that existing cybersecurity standards should not serve as constraints on the adoption of improved and potentially more secure technologies.<sup>60</sup>

38. The Ohio Commission requests that the Commission clarify its neutrality towards specific configurations and/or technology and that the common information model should not be too formulaic and thereby provide easy opportunities to defeat the cybersecurity standards.<sup>61</sup> The California Commission suggests that standards should protect the grid from inadvertent and direct cyber attacks while approved technologies should have the ability to: (1) withstand direct cyber attacks, (2) maintain resiliency in times of extreme stress and congestion, and (3) automatically (or intelligently) respond to adverse system conditions as they occur.<sup>62</sup>

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<sup>58</sup> GWAC Comments at 13-15, 29-31.

<sup>59</sup> B-D Research Comments at 1-4.

<sup>60</sup> E.ON Comments at 4-6.

<sup>61</sup> Ohio Commission Comments at 11-12.

<sup>62</sup> California Commission Comments at 7.

39. On the matter of Commission-approved Reliability Standards, Southern contends that the Commission should confirm that smart grid installations do not automatically create mandatory Reliability Standard compliance obligations and that they do not automatically constitute critical cyber assets. In its view, smart grid technologies and applications should be considered critical cyber assets only when they would be designated as such under the requirements of Commission-approved CIPS Reliability Standard CIP-002.<sup>63</sup> NRECA suggests that a number of NERC Reliability Standards may need to be developed or revised concurrently with the implementation of smart grid technology.

#### Commission Determination

40. The Commission adopts its proposed policy position that the development of cybersecurity standards is a key priority in protecting the electricity grid. The possibility that an adversary could access any of potentially millions of smart grid devices and use this access to disrupt the proper functioning of the bulk-power system creates new challenges for the operation of the nation's electricity grid. These challenges are a natural consequence of the extensive communications network comprising the smart grid. Because cybersecurity becomes a concern whenever one system communicates with another, it is important to focus from the outset on cybersecurity as an essential feature of the design of interoperability standards. There is strong support for this focus from the commenters.

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<sup>63</sup> Southern Comments at 8-9.

41. Accordingly, consistent with our cybersecurity mandates under EISA, the Commission will require a demonstration of sufficient cybersecurity protections in proposed smart grid standards to be considered in a rulemaking proceeding under EISA, including, where appropriate, a proposed smart grid standard applicable to local distribution-related components of smart grid. Specifically, there must be a demonstration that a proposed smart grid standard: (1) directly incorporates cybersecurity protection provisions, or (2) incorporates cybersecurity protection provisions from other smart grid standards or electric Reliability Standards that are submitted to the Commission concurrently, are already pending before the Commission, or have previously been adopted or approved by the Commission under EISA or section 215 of the FPA, respectively, provide cybersecurity protection for the electric power system for the proposed standard.

42. The Commission does not intend to preempt the development and implementation of an interoperability smart grid framework with the prioritization of cybersecurity and physical security. On the contrary, given our reliability and security oversight mandates under EISA and FPA section 215, we are attempting to promote and accelerate development and implementation of cybersecurity elements that are foundational to the smart grid, and which will also promote maintenance of the integrity and reliability of the underlying bulk-power system. Clearly, interoperability standards must support, and not conflict with, critical efforts to improve the cybersecurity of electric power systems.

43. As noted, many of the commenters request collaboration between the Institute and NERC on the development of smart grid standards. The Commission agrees with this approach and encourages NERC, as the Electric Reliability Organization certified by the Commission pursuant to FPA section 215, along with the states and other federal agencies, to collaborate with the Institute in developing its interoperability framework. We expect that NERC will monitor the compatibility of the smart grid standards with the Commission-approved CIPS standards and help identify any gaps or inconsistencies that are left unaddressed. To the extent necessary, the Commission would direct NERC to submit to the Commission a new or modified Reliability Standard as necessary or appropriate to carry out the Commission's responsibilities under section 215 of the FPA as they relate to the development of smart grid standards.

44. On the matter of Commission jurisdiction over standards, the Commission notes, as discussed above, that the cybersecurity characteristic of the smart grid is statutorily specified under EISA. In EISA, Congress envisions a smart grid with cybersecurity as a foundational element of its system and provided for cybersecurity throughout the statute.<sup>64</sup> Thus the Commission agrees with commenters such as NERC and CAISO that the reliability of the bulk-power system hinges on insuring the cybersecurity of all interconnections, including distribution system interconnections, to the extent allowed by EISA.

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<sup>64</sup> See EISA sec. 1301(2).

45. With respect to comments regarding the level of specificity in the cybersecurity requirements, constraints on improvements, and system resiliency and responsiveness to attacks, the Commission agrees that these concerns warrant the attention of the Institute, NERC, and others who are working on proposed smart grid cybersecurity issues. The Commission appreciates that the Roadmap Report highlights several relevant cybersecurity requirements, including those required in the Commission-approved CIPS standards.<sup>65</sup> The Commission takes no position here regarding specific technologies and technical configurations that are appropriate for particular smart grid standards. Finally, we agree that deploying smart grid technologies does not, in and of itself, result in the need for compliance with Reliability Standards. Compliance with Reliability Standards is determined through other processes under FPA 215, such as the NERC compliance registration process and the specific requirements of Commission-approved Reliability Standards.

**2. Communication and Coordination Across Inter-System Interfaces**

46. The Proposed Policy Statement suggested making the development of standards for inter-system interfaces a key priority. It described the issue as follows:

The second cross-cutting issue is the need for a common semantic framework (i.e., agreement as to meaning) and software models for enabling effective communication and coordination across inter-system interfaces. An interface is a point where two systems need to exchange data with each other; effective communication and coordination occurs when each of the systems understands and can

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<sup>65</sup> See Roadmap Report at 7.

respond to the data provided by the other system, even if the internal workings of each system are quite different.<sup>66</sup>

47. The Commission stated that IEC Standards 61970 and 61968 (together, Common Information Model), along with IEC 61850 (Communications Networks and Systems in Substations), could provide a basis for addressing this issue.<sup>67</sup> We clarified that we were not proposing any Commission requirement that these standards be developed further, but were identifying them for comment on whether these standards should be considered as important elements in efforts to realize significant early benefits of the smart grid.<sup>68</sup>

#### Comments

48. Many commenters agree on the need for effective communication and coordination across inter-system interfaces,<sup>69</sup> as well as using the Common Information Model standards as a starting place. Starting with Common Information Model standards was mentioned positively by GWAC, National Grid, NRG, Kansas Commission, Midwest ISO, and CAISO. However, some commenters caution that the premature implementation of standards for common information models for inter-system interfaces might result in valuable existing information systems being deemed inconsistent,

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<sup>66</sup> Proposed Policy Statement, 126 FERC ¶ 61,253 at P 32.

<sup>67</sup> Id.

<sup>68</sup> Id. P 33.

<sup>69</sup> GWAC Comments at 16, Kansas Commission Comments at 3, Duke Comments at 8, NEMA Comments at 5, Midwest ISO Comments at 3, CAISO Comments at 7, ISO-NE Comments at 2, NRECA Comments at 17, NRG Comments at 7, National Grid Comments at 2, GridWise Alliance Comments at 1, and NERC Comments at 12.

requiring unnecessary replacement. They suggest a gradual phasing in of new technologies as other systems are retired.<sup>70</sup> NERC, on the other hand, contends that development of inter-system interfaces is one method whereby new and legacy control systems can be enabled to communicate with each other, which should extend the life of such legacy systems.<sup>71</sup>

49. Silver Spring Networks suggests that the Commission also include networking as a priority in smart grid standards development.<sup>72</sup> Silver Spring Networks and AT&T also strongly support the use of Internet Protocol as a networking standard.<sup>73</sup>

50. Regional transmission organizations that submitted comments support the Commission's proposals and offer some suggestions. CAISO suggests that communication across inter-system interfaces would be essential for "deep-area situational awareness" and for demand response.<sup>74</sup> NYISO suggests that regional transmission organizations (RTOs) and independent system operators (ISOs) should take a prominent role in the development of inter-system interface definitions and data communication protocols.<sup>75</sup>

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<sup>70</sup> Kansas Commission Comments at 3 and SDG&E Comments at 19-20.

<sup>71</sup> NERC Comments at 12.

<sup>72</sup> Silver Spring Networks Comments at 1.

<sup>73</sup> *Id.* at 3; AT&T Comments at 3.

<sup>74</sup> CAISO Comments at 7.

<sup>75</sup> NYISO Comments at 5.



Commission Determination

51. The Commission adopts the proposed policy position that the development of standards for communicating and coordinating across inter-system interfaces is a key priority cross-cutting issue. We agree with GWAC that the smart grid is essentially a “system of systems” and that standardized communications across the interfaces of these systems is a critical enabler of smart grid functionality and interoperability. The Commission recognizes that development of a common semantic framework and software models for enabling effective communication and coordination across the inter-system interfaces is critical to supporting virtually all of the smart grid goals, such as system self-healing, integration of diversified resources, and improved system efficiency and reliability. We note that the Institute’s interoperability standards development process has already paid a substantial amount of attention to this topic. The Institute’s preliminary list of sixteen standards<sup>76</sup> identified for the smart grid framework includes IEC 61968/61970 and IEC 61850, which had been suggested by the Commission as part of a starting point for communication across interfaces.<sup>77</sup> The Roadmap Report document indicates that much of the ongoing work in the Institute’s process will center on developing common semantic and information models.<sup>78</sup>

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<sup>76</sup> See Initial List of Smart Grid Interoperability Standards, Request for Comments, 74 FR 27288 (June 9, 2009).

<sup>77</sup> See Proposed Policy Statement, 126 FERC ¶ 61,253 at P 33.

<sup>78</sup> Roadmap Report at 90.

52. The Commission agrees with the Kansas Commission that the standards development process to enable communications and coordination across inter-system interfaces should not cause premature dismantling of utility and RTO systems that currently function well. Older software systems should be able to continue in service during a transition period by using translators or bridges of reasonable cost that enable the outputs of such systems to be understood by newer higher functionality systems.

53. We agree with NYISO's suggestion that RTOs and ISOs should take a prominent role in defining system interfaces, and we encourage ISOs, RTOs and all other FERC-jurisdictional utilities to engage in the Institute's standards development process.

54. With regard to networking standards and the potential use of Internet Protocol, the Commission will consider the findings of the Institute's standards development process in our rulemaking process.

### **3. Wide-Area Situational Awareness**

55. In the Proposed Policy Statement, the Commission placed emphasis on wide-area situational awareness as another key priority for the smart grid. Wide-area situational awareness is the visual display of interconnection-wide system conditions in near real time at the reliability coordinator level and above. The implementation of wide-area situational awareness could help mitigate the effect of reliability events by giving reliability entities an improved and manageable high-level view of system conditions and parameters.

56. Furthermore, the Commission identified increased deployment of advanced sensors like Phasor Measurement Units as a tool to give bulk-power system operators access to large volumes of high-quality information about the actual state of the electric system. This functionality could help a smart grid address transmission congestion and system optimization. The Commission acknowledged that this technology would present its own set of challenges in the form of information processing and management and suggested that the Institute should strive to identify the necessary advanced software and systems that would be most useful to system operators in addressing transmission congestion and reliability.<sup>79</sup> The Commission recognized the efforts undertaken by the North American SynchroPhasor Initiative and encouraged RTOs to take a leadership role in coordinating such work with the member transmission owners.<sup>80</sup>

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<sup>79</sup> Proposed Policy Statement at P 36.

<sup>80</sup> Id. P 35.

Comments

57. Commenters generally support the proposition that wide-area situational awareness should be a key priority in the development of Smart Grid interoperability standards. Many commenters agree with the Proposed Policy Statement that advanced sensors like Phasor Measurement Units will give bulk-power system operators access to large volumes of high-quality information about the system.<sup>81</sup> Furthermore, commenters agree with the Commission that accessing that level of information will require the development of advanced software and systems. Various commenters note that further investigation regarding additional features for Phasor Measurement Units is required. Furthermore, using high quality information about the actual state of the system to possibly switch from the current static transmission line rating system to a dynamic transmission line rating system would require more research.<sup>82</sup> NERC, for example, notes that although there might be additional uses for Phasor Measurement Units, their primary use should be to improve and protect the reliability of the bulk-power system.

58. Commenters agree with the Commission that coordination between RTOs and the North American SynchroPhasor Initiative will play a key role in the development of

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<sup>81</sup> See, e.g., Kansas Commission Comments at 4-5, Gridwise Alliance Comments at 11, and Duke Comments at 11.

<sup>82</sup> See, e.g., Kansas Commission Comments at 4-5, Gridwise Alliance Comments at 11, Open Secure Systems Comments at 4, NERC Comments at 17, and American Transmission Comments at 8.

synchrophasor initiatives.<sup>83</sup> Furthermore, commenters agree that the Institute should identify the core requirements for advanced software and systems that will gather large volumes of data and present it in a useful manner to operators. However, NERC states that such efforts have been underway for several years under the guidance of the Department of Energy's visualization and controls research and development program with contributions from TVA, Bonneville Power Administration, and CAISO.<sup>84</sup> NERC believes that since these entities are already engaged on these issues, they, and not the Institute, should be in charge of designing and implementing the core requirements for software and hardware systems.

59. AWEA notes that hardware and software tools that will serve to integrate wind should be considered vital smart grid technology. For example, AWEA states that devices that will contribute to consolidating balancing authorities, tools for faster-interval/dispatch scheduling, and tools to better forecast wind energy should be considered smart grid technology.<sup>85</sup>

60. Duke seeks clarification on the Proposed Policy Statement's definition of wide-area situational awareness as "the visual display of interconnection-wide system

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<sup>83</sup> See, e.g., CAISO Comments at 9-10, Gridwise Alliance Comments at 11, and Midwest ISO Comments at 4.

<sup>84</sup> NERC Comments at 18.

<sup>85</sup> AWEA Comments at 7-11.

conditions in near real time at the reliability coordinator level and above.”<sup>86</sup> Duke believes that wide-area situational awareness should be the responsibility of all NERC-defined functional reliability entities, such as balancing authorities, transmission operators, and so forth, and not just limited to the reliability coordinator level and above. Furthermore, Duke states that “if the result of the Commission’s term ‘reliability coordinator and above’ is that Duke Energy would be required to provide to other parties information or data that is not Duke Energy specific (i.e., information that pertains to other regional entities), this is of concern, and would require new information-sharing and disclosure protocols.”<sup>87</sup>

#### Commission Determination

61. The Commission adopts its proposed policy position that wide-area situational awareness should be a key priority for the standards development process. Wide-area situational awareness is imperative for enhancing reliability of the bulk-power system because it allows for greater knowledge of the current state of available resources, load requirements, and transmission capabilities. Increased situational awareness could allow for additional system automation and quicker reaction times to various reliability events. Given this concern about the need for increased situational awareness, and in response to Duke’s request for clarification that the Commission’s description of wide-area

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<sup>86</sup> Duke Comments at 10.

<sup>87</sup> Id. at 11.

situational awareness in the Proposed Policy Statement was not intended to limit such responsibility to reliability coordinators only, we clarify that this was not our intent.

62. Regarding the development of wide-area situational awareness standards, the Commission agrees with NERC that it would be reasonable for the Institute to consider work done by the Department of Energy and others as the Institute develops standards.

#### **4. Demand Response**

63. In the Proposed Policy Statement, the Commission stated that smart grid-enabled demand response is a key priority for standards development because of its potential to help address several bulk-power system challenges including reliably integrating unprecedented amounts of variable generation resources into the electric grid. The Commission stated that the further development of key standards should enhance interoperability and communications between system operators, demand response resources, and the systems that support them.<sup>88</sup>

64. The Commission proposed the development of a series of demand response use cases<sup>89</sup> employing readily available tools in order to achieve an appropriate level of standardization. The Commission encouraged a particular focus on use cases for the key

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<sup>88</sup> See Proposed Policy Statement, 126 FERC ¶ 61,253 at P 37-39.

<sup>89</sup> As noted in the Proposed Policy Statement, the use case approach is a concept from the software and systems engineering communities whereby a developer, usually in concert with the end user, attempts to identify all of the functional requirements of a system. Each use case essentially describes how a user will interact with a system of other actors and objects to achieve a specific goal. The use case will identify the interfaces between different elements and the information being exchanged.

demand response activities of dispatchable demand response load reductions to address loss or unavailability of variable resources, and the potential for dispatchable demand response to increase power consumption during over-generation situations.

65. The Commission noted that considerable work has been done to develop demand response standards (e.g., Open Automated Demand Response) and further encouraged a focus on additional standardization of the interfaces between systems on the customer premises and utility systems, including addressing data confidentiality issues.

66. The Commission encouraged the Institute and industry to work together on further standards development, starting with the Institute's suggestion of the harmonization of IEC standard 61850 and several meter standards, namely ANSI C12.19 and C12.22. Finally, the Commission requested comment from states and other parties on the optimal approach to develop standards in the area of customer meters, and stated that the Commission will pursue direct communications with the states on this topic.



Comments

67. Most comments recognize the importance of demand response for helping to address the types of challenges listed in the Proposed Policy Statement.<sup>90</sup> NARUC supports working with the Commission to further develop and expand demand response programs.<sup>91</sup> That said, NARUC and others stress the need to remember that demand response, and the metering and retail pricing reforms that might be needed to fully realize demand response's potential, require retail customer involvement and are thus firmly state-jurisdictional matters.<sup>92</sup>

68. NARUC also emphasizes that demand response programs can and have operated without smart grid capabilities.<sup>93</sup> On the other hand, there were several comments stressing the importance to demand response of national standardization of certain supporting technologies, like communication between customer equipment and utility systems and national metering standards.<sup>94</sup> These commenters state that the development of metering standards at a national level would be helpful to increase the use of the smart

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<sup>90</sup> See, e.g., NYISO Comments at 10, ISO-NE Comments at 4, and ELCON Comments at 4-5.

<sup>91</sup> NARUC Comments at 8.

<sup>92</sup> See, e.g., NARUC Comments at 6-8, Ohio Commission Comments at 7, Kansas Commission Comments at 5, and Wal-Mart Comments at 5.

<sup>93</sup> NARUC Comments at 8.

<sup>94</sup> See, e.g., NEM and Intelligent Energy Comments at 8 and Wal-Mart Comments at 3-4.

grid by demand response resources and avoid implementing multiple, proprietary, non-compatible metering standards across the country that raise the cost of doing business in different markets.

69. Another key issue for commenters involves the need to develop measurement and verification standards for demand response. The demand response aggregation industry believes that standards will open up new markets for demand response (e.g., capacity or ancillary services markets) and will leverage and enable demand response integration to address variable generation needs.<sup>95</sup> In addition, American Transmission states that specific, concrete requirements will be key to ensuring that committed demand response is available when needed allowing utilities to reliably include demand response capabilities in their transmission planning.<sup>96</sup>

70. Several commenters focus on the Proposed Policy Statement's discussion of dispatchable demand response, though their comments tend to reflect different viewpoints.<sup>97</sup> GWAC seems to interpret this discussion as imposing demand response on some group of customers that might be given no option but to respond to dispatch signals from system operators regardless of whether they are able to or want to participate.<sup>98</sup>

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<sup>95</sup> See, e.g., Comverge Comments at 1-2 and DRSG Coalition Comments at 7-8.

<sup>96</sup> American Transmission Comments at 6.

<sup>97</sup>As discussed in the Proposed Policy Statement, "dispatchable" demand response allows participants to adjust their demand at the direction of a system operator. Proposed Policy Statement, 126 FERC ¶ 61,253 at P 20.

<sup>98</sup> GWAC Comments at 4.

GWAC prefers voluntary response to dynamic pricing signals. In contrast, some commenters support a focus on voluntary dispatchable demand response programs.<sup>99</sup> Black Hills Corporation expresses concern with the additional investment required for “time sensitive” rates for retail customers since ratepayers are already paying higher rates due to recovery mechanisms for efficiency, renewable portfolio, and carbon reduction standards in various states.<sup>100</sup>

71. Those commenters who speak to the issue seem to support the focus on developing demand response use cases as a first step toward interoperability standards.<sup>101</sup> In a similar vein, some stress the need to identify and support valuable opportunities for the use of demand response; for example, to provide ancillary services.

72. There are also comments stressing the importance to demand response of providing appropriate access to information gathered from advanced meters.<sup>102</sup> However, NARUC also touches upon this topic in discussing data confidentiality and other such issues. It emphasizes that these issues are firmly within the jurisdiction of state

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<sup>99</sup> See, e.g., Kansas Commission Comments at 4-5 and Black Hills Corp. Comments at 3.

<sup>100</sup> Black Hills Corp. Comments at 3.

<sup>101</sup> See, e.g., NYISO Comments at 10, Alcoa Comments at 5-6, and CAISO Comments at 12.

<sup>102</sup> NEMA and Intelligent Energy Comments at 2, 4.

commissions and that a rulemaking targeting standards connected to the customer premises will exceed the Commission's jurisdiction.<sup>103</sup>

73. Wal-Mart argues that any environmental attributes (e.g., carbon reduction allowances) associated with demand response equipment should be retained by the customer in order to foster customer participation and purchase of such equipment.<sup>104</sup>

#### Commission Determination

74. The Commission adopts its proposed policy position that the development of standards for demand response is a key priority. We agree with ELCON that smart grid technologies have considerable potential to promote demand response, which can reduce wholesale prices and wholesale price volatility and reduce potential generator market power. We also agree with NERC that smart grid capability can enhance the application of demand response to accommodate the integration of variable generation. As NYISO also points out, demand response resources play an important role in maintaining system security, especially in constrained areas. Moreover, demand response can be particularly helpful in situations when production from variable generating resources has fallen. We note that the Institute has identified demand response as a key priority focus in its interoperability standards development process.

75. In order to achieve appropriate demand response standards, the Commission also adopts its proposed policy position that emphasis should be put on further development

<sup>103</sup> NARUC Comments at 9.

<sup>104</sup> Wal-Mart at 5.

of use cases and scenarios for demand response, particularly with regard to dispatchable demand response and various forms of dynamic pricing. We agree with comments by Alcoa and Wal-Mart recommending that the dispatchable demand response interoperability standards effort should support the full range of customer types from large industrial customers through commercial and smaller residential customers. Furthermore, we expect that a standard for a dispatchable demand response program would support either a mandatory or voluntary program, as determined by the utility or retail regulator. With regard to dynamic pricing, the Commission agrees with GWAC that it is important to develop standards that support dynamic pricing, which offers an efficient means and incentive for large numbers of smaller customers to take appropriate demand response actions. We clarify that it is not our intention to require the use of dynamic pricing in retail rates. It is, important, however, for utilities and states that choose this option to develop standard pricing terminology and methods for communicating pricing information.<sup>105</sup>

76. The Commission notes that the early stages of the Institute's interoperability standards development process included investigation of standards for advanced metering systems. The Commission suggested in the Proposed Policy Statement that the development of national interoperability standards for meters may be appropriate.<sup>106</sup>

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<sup>105</sup> The Jurisdictional Concerns section of this Policy Statement contains a more extensive discussion of the boundaries between federal and state jurisdiction.

<sup>106</sup> See Proposed Policy Statement, 126 FERC ¶ 61,253 at P 39.

Such standards could also lead to more communications among systems as well as facilitate the transfer of a successful program to other systems. National interoperability standards for meters should enable the use of direct load control, dynamic pricing, current tariff pricing or other program options that are approved by retail regulators. We stress, however, that the development of national interoperability standards for meters does not create an obligation for states or utilities to use them or to offer any specific type of demand response program. The Commission continues to recognize that state and local regulators have jurisdiction over retail rates and cost recovery. Recovery of retail jurisdictional costs will continue to be determined by state and local regulators. The Commission will continue to pursue direct communications with the states and other parties on the optimal approach to develop interoperability standards in the area of customer meters. It is with these understandings that we encourage the Institute and its industry collaborators to continue investigating potential national interoperability standards for meters.

77. Several commenters state the importance of developing measurement and verification standards for demand response. We agree. However, the Commission need not further address this topic because participants in several forums are doing so, including the North American Energy Standards Board and in compliance filings before the Commission resulting from Order No. 719.<sup>107</sup> Finally, the Commission finds that

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<sup>107</sup> Wholesale Competition in Regions with Organized Electric Markets, Order No. 719, 73 Fed Reg 61,400 (Oct. 28, 2008), FERC Stats. & Regs. ¶ 31,281 (2008).

Wal-Mart's request that any environmental attributes (e.g., carbon reduction allowances) associated with demand response equipment should be retained by the customer is outside the scope of this Policy Statement.

## 5. Electric Storage

78. In the Proposed Policy Statement, the Commission stated that if electricity storage technologies could be more widely deployed, they would present an important means of addressing some of the difficult issues facing the electric industry, including helping to address large-scale changes in generation mix. The Commission noted that, to date, the most significant bulk-electricity storage technology has been pumped storage hydroelectric technology but that new types of storage technologies are under development and in some cases are being deployed, and could also potentially provide substantial value to the electric grid.<sup>108</sup> The Commission proposed that, while continued research and development appeared necessary before any widespread deployment of such newer technologies can take place, it is appropriate to encourage the identification and standardization of all possible electricity storage use cases at an early stage. While the suggested prioritization of storage use cases was the Commission's only proposal in this

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<sup>108</sup> For the purposes of this Policy Statement, electric storage refers to the storage of different forms of energy that may be beneficial to the bulk-power system. For example, while pumped hydroelectric storage refers to the potential energy stored in a reservoir of water, it is the conversion of that energy to electricity by a water turbine generator that makes it useful. Similarly, a flywheel stores kinetic energy to spin a generator, and batteries convert chemical energy directly into electricity. Moreover, there are useful applications for stored energy (for example, thermal energy) that is not converted into electricity, but can substitute for electrical power by providing an end use.

area, the Commission then went on to highlight certain existing standards that may be relevant to further work on storage-related interoperability standards.<sup>109</sup>

### Comments

79. GridWise Alliance describes the many benefits energy storage may provide to the nation's grid, such as grid optimization for bulk-power production; balancing in systems with variable renewable energy sources; facilitation of integration of electric vehicles; deferring investments in transmission and distribution infrastructure to meet peak loads; and providing ancillary services to grid/market operators.<sup>110</sup> Many commenters agree that standards for electric storage should be a priority. APPA agrees that standardization of use cases, protocols and communications regarding new types of electricity storage should be undertaken early to avoid a proliferation of competing and incompatible deployments of storage system technologies.<sup>111</sup> National Grid and Public Interest Organizations state that electric storage will enable system integration of greater amounts of renewable energy as well as improve overall system efficiency.<sup>112</sup> NERC recommends that the Commission adopt standards and protocols on electric storage, and states that

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<sup>109</sup> Proposed Policy Statement, 126 FERC ¶ 61,253 at P 40.

<sup>110</sup> GridWise Alliance Comments at 11.

<sup>111</sup> APPA Comments at 14.

<sup>112</sup> National Grid Comments at 5, and Public Interest Organizations Comments at 3.



NERC plans to work collaboratively with the Commission and the Institute on electric storage issues that could have an impact on bulk-power system reliability.<sup>113</sup>

80. Some commenters express reservations about establishing storage standards at this time. NYISO recommends that the Commission allow more time to develop experience with integrating these devices and that standardization of uses should await actual operating experience with these devices.<sup>114</sup> CAISO indicates that tariffs and not detailed standards would best shape storage development and integration.<sup>115</sup> Xcel voices a concern that early standardization of storage could stifle innovation.<sup>116</sup> CPower questions the Commission's ability to properly delineate yet un-developed storage use cases.<sup>117</sup>

#### Commission Determination

81. The Commission agrees with the comments of GridWise Alliance and others that electricity storage can serve as a potentially valuable resource providing a variety of services to the bulk-power system. We adopt our proposed policy position that electric storage is a key functionality of the smart grid, and standards related to storage should be treated as a key priority by the Institute and industry in the interoperability standards

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<sup>113</sup> NERC Comments at 20-21.

<sup>114</sup> NYISO Comments at 11.

<sup>115</sup> CAISO Comments at 13-14.

<sup>116</sup> Xcel Comments at 5-6.

<sup>117</sup> CPower Comments at 5.

development process, subject to certain reservations. However, the Commission appreciates the concerns of commenters such as NYISO that have expressed reservations about the premature establishment of electric storage standards. Indeed, it was just such concern that led us, in the Proposed Policy Statement, to suggest prioritization of the development of storage use cases at that time. However, it is important to note that the Institute's interoperability standards development process has already assembled a limited number of storage use cases and identified a few standards that could be a starting point for development of interoperability standards for storage. Thus, we encourage the Institute and industry to continue this effort for interoperability standards for storage.

82. The Commission continues to believe that storage use case development is an important step on the path to developing relevant interoperability standards, and thus on the path to enabling the wider deployment of storage. However, any initial identification of storage use cases would not be exhaustive; if new use cases are identified in the future, they can be added to the initially identified set of use cases for storage at that time. Initial identification of use cases should not impede future storage innovations.

## **6. Electric Vehicles**

83. The Commission also identified the integration of electric transportation as a key priority of smart grid functionality. The Commission stated that, to the extent that new electric transportation options become more widely adopted in the near future,

maintaining the reliable operation of the bulk-power system will require some level of control over when and how electric vehicles draw electricity off of the electric system.

84. The Commission explained its hope that smart grid interoperability standards would ultimately accommodate a wide array of advanced options for electric vehicle interaction with the grid, including full vehicle-to-grid capabilities. However, as a first step, the Commission decided only to request that appropriate standards be made a high priority so that distribution utilities will be able to encourage customers to charge their vehicles during off-peak load periods.<sup>118</sup>

85. The Commission also noted that, for the potential provision of ancillary services to the grid by electric vehicles, electrical interconnection issues must be dealt with along with potential expansion of communications ability and urged the Society of Automotive Engineers and the automobile industry to plan upgradable data communications systems between electric vehicles and the power system. Finally, the Proposed Policy Statement urged the Institute to include electric vehicles in its distributed energy resource standards development.

### Comments

86. National Grid points out the benefits of electric transportation as being a significant part of the solution to electric storage, shaping demand, and providing ancillary services to maintain reliability and operational efficiency of the electric delivery

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<sup>118</sup> Proposed Policy Statement, 126 FERC ¶ 61,253 at P 42.

system.<sup>119</sup> NYISO agrees with the Commission's proposed approach toward addressing the greater penetration of electric vehicles and developing a common set of operating rules, market rules, and communication standards.<sup>120</sup> AWEA agrees with the Commission that electric vehicles can improve the flexibility of the grid and provide electricity storage solutions that help to address the potential for over-generation in off-peak periods.<sup>121</sup> Comverge agrees that electric vehicles deserve particular attention with respect to interoperability, smart charging, enhanced information processing, and high-speed communications and control.<sup>122</sup> NERC points out that the reliability of the bulk-power system could be impacted by high levels of the penetration of electric vehicles, changing the complexity of managing demand and energy dramatically.<sup>123</sup>

87. On the other hand, some commenters assert that either electric transportation technology itself or the standards for its integration should not be priority items. The most common reason stated is that widespread adoption of electric vehicles is seen as occurring too far into future and that prioritization should be given to more immediately beneficial functionalities.<sup>124</sup> The early stage of electric vehicle development is also cited by CAISO and NRECA as a reason that it would be premature to develop standards for

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<sup>119</sup> National Grid Comments at 5.

<sup>120</sup> NYISO Comments at 11.

<sup>121</sup> AWEA Comments at 10.

<sup>122</sup> Comverge Comments at 3.

<sup>123</sup> NERC Comments at 20-21.

<sup>124</sup> See, e.g., Illinois Commission Comments at 3-4, Maryland Counsel Comments

them.<sup>125</sup> While NRECA indicates that standards development should be put off until more research and analysis is done, CAISO indicates that standards should only address basic, structural, competitive and architectural issues. CAISO views electric vehicles as another resource to be shaped by tariff incentives rather than technology standards.

88. Kansas Commission questions which mandates related to vehicle charging and real time metering the Commission intends to implement. Kansas Commission also asks the Commission to clarify what it believes is the extent of its jurisdiction.<sup>126</sup> Maryland Counsel similarly expresses jurisdictional concerns when it asserts that, unless related to wholesale and transmission functions, electric vehicles will fall into the state's jurisdiction over distribution (and so costs related to them should not be recoverable in Commission-regulated rates).<sup>127</sup>

89. Allegheny Companies indicate that electric vehicles should be viewed like all pieces of equipment with demand response responsibility and that while electric transportation standard development should not be a priority, the grid must have flexible standards and protocols to support electric vehicles.<sup>128</sup> Ohio Partners view modifications

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at 3-4, and Springfield Comments at 6.

<sup>125</sup> CAISO Comments at 13-14 and NRECA Comments at 19.

<sup>126</sup> Kansas Commission Comments at 6.

<sup>127</sup> Maryland Counsel Comments at 4.

<sup>128</sup> Allegheny Companies Comments at 4.

to the grid to support electric vehicles as a subsidy for electric car makers to the harm of existing fuel retailers and at a cost to customers.<sup>129</sup>

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<sup>129</sup> Ohio Partners Comments at 9.

Commission Determination

90. The Commission adopts the proposed policy position that electric transportation is a key functionality of the smart grid, and standards relating to electric transportation should be treated as a key priority by the Institute and industry in the process of developing interoperability standards. We agree with NERC that the reliability of the bulk-power system could be affected by the high levels of penetration by electric vehicles. However, the ability of distribution utilities to facilitate off-peak charging may be able to mitigate such reliability concerns. Discussions at the Institute's recent conferences indicate that certain metropolitan areas are likely to experience high penetrations of electric vehicles more quickly than others. NYISO suggests that environmental concerns could lead to relatively high levels of electric vehicle penetration in New York by 2020.

91. For these reasons, although the market will likely play the principal role in determining whether and when electric vehicle load will become significant for utility systems, we urge the early development of technical requirements that can permit distribution utilities to facilitate electric vehicle charging during off-peak load periods. Such technical capability should provide the state commissions with an additional tool to deal with any electric vehicle-related load growth that they may see in the future. Interoperability standards that support such a choice by states permitting the electric vehicle to, for example, receive and respond appropriately to peak pricing signals could

greatly improve the success of such an effort. However, if another state commission sees no need for such price signals in its area, the mere existence of interoperability standards would in no way require the state to adopt such a pricing policy. Accordingly, we see no jurisdictional issues with this recommendation for prioritization.

### 7. **Additional Priorities Suggested by Commenters**

92. In addition to the key priorities listed in the Proposed Policy Statement, several commenters suggest additional priorities for interoperability standards: modernization of the communications and control technologies in the grid; standards for existing resources (legacy) equipment and cost effective integration of legacy equipment; interfaces between utilities (with interfaces between utilities and customers and other systems to be developed along with state and other regulatory bodies); and limitations on access to and use of individual customer power usage information. The Valley Group states that, because standards for enabling technologies (rather than communications standards) will provide the grid with immediate and tangible benefits, these should also be a priority. AWEA lists several more general matters that it suggests must be addressed before broad-based deployment of smart grid technologies can fully utilize their potential to better accommodate renewable power. These include investment in an extra-high voltage backbone system, faster interval dispatch and scheduling, expanded area control error diversity, integration of wind energy forecasts, and dynamic line rating.



Commission Determination

93. The Commission will not make any additional standards a priority for development at this time. Some of the proposed additional priorities are already included in this Policy Statement. For example, support for the modernization of the communications and control technologies on the grid underlies this entire effort, and the use of legacy equipment as utilities migrate to a smart grid is addressed in the Interim Rate Policy. Similarly, to the extent that standards for enabling technology are needed to permit the development of useful smart grid capabilities like wide-area situational awareness standards, then such standards would be encompassed by our broader recommendation to make wide-area situational awareness standards a key priority.

94. Limitations on access to, and use of, individual customer power usage information may be addressed by retail regulators and, in any event, are beyond the scope of this Policy Statement. Finally, although the topics suggested by AWEA are important, they do not relate to the development of interoperability standards and, therefore, are more appropriate to address outside of this proceeding.

**C. Interim Rate Policy**

95. In the Proposed Policy Statement, the Commission stated that certain upcoming challenges to the operation of the bulk-power system justified enacting policies to encourage the near-term deployment of smart grid systems capable of helping to address those challenges.<sup>130</sup> Accordingly, the Commission proposed certain rate policies meant to

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<sup>130</sup> Proposed Policy Statement, 126 FERC ¶ 61,253 at P 45.

encourage such near-term deployment while appropriately protecting customers from stranded costs and the electric system from potential cybersecurity threats. Consistent with FPA section 205, which requires that all rates for the transmission or sale of electric energy subject to the Commission’s jurisdiction be just and reasonable,<sup>131</sup> the Commission proposed to consider smart grid devices and equipment—including those used in a smart grid pilot program or demonstration project—to be “used and useful”<sup>132</sup> for purposes of cost recovery if the applicant makes certain showings.<sup>133</sup>

### **1. Scope and Duration**

96. In the Proposed Policy Statement, the Commission stated that, once interoperability standards are adopted, it will consider making compliance with those standards a mandatory condition for rate recovery of jurisdictional smart grid costs. For the period until interoperability standards are adopted, the Commission proposed the Interim Rate Policy to accept rate filings submitted under FPA section 205 by public utilities to recover the costs of smart grid deployments involving jurisdictional facilities, provided those filings make certain showings set out by the Commission in this Policy Statement. The Commission restated this proposal in terms of finding smart grid

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<sup>131</sup> 16 U.S.C. 824d.

<sup>132</sup> The general rate-making principle is that expenditures for an item may be included in a public utility’s rate base only when the item is “used and useful” in providing service. See NEPCO Municipal Rate Committee v. FERC, 668 F.2d 1327, 1333 (D.C. Cir. 1981).

<sup>133</sup> Proposed Policy Statement at P 45.

investments to be “used and useful” for purposes of rate recovery if an applicant makes these showings.

### Comments

97. Several commenters support the Interim Rate Policy.<sup>134</sup> These commenters state that an interim rate policy is necessary for the deployment of smart grid resources.

National Grid states that the Commission properly recognizes that utilities will only be willing to deploy smart grid equipment if they are able to recover the associated costs in regulated rates.<sup>135</sup> PSEG believes that implementing the Interim Rate Policy is a critical component in advancing the ultimate smart grid evolution.<sup>136</sup>

98. Allegheny Companies assert that utilities with stated transmission rates may fail to recover their full cost of service as the deployment of smart grid technologies may reduce the amount of electricity they sell, and argue that rates should be revised to decouple revenues from electricity sold.<sup>137</sup> Meanwhile, several commenters expect or seek clarification that smart grid costs can be recovered in formula rates including existing formula rates, and that existing rate formulae do not require modification in order to accommodate such smart grid costs.<sup>138</sup>

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<sup>134</sup> Gridwise Alliance Comments at 12, PSEG Companies Comments at 4-5, 8, National Grid Comments at 5-7, Duke Comments at 11-12, Comverge Comments at 5-6, and FirstEnergy Comments at 10.

<sup>135</sup> National Grid Comments at 5.

<sup>136</sup> PSEG Comments at 4.

<sup>137</sup> Allegheny Comments at 8.

<sup>138</sup> American Transmission Comments at 6-7, EEI Comments at 14, and National Grid Comments at 6.

99. NARUC states that efficiency gains and other related benefits of smart grid deployments should be factored into rate-setting before passing all costs through to consumers.<sup>139</sup> NARUC also comments that any government funding under the Department of Energy smart grid grant programs should be factored into cost recovery. AARP urges caution regarding expedited consideration of such rate filings before final adoption of interoperability standards.<sup>140</sup>

100. Wal-Mart proposes that the Commission include a deadline for either terminating or at least revisiting the Interim Rate Policy.<sup>141</sup> Alternatively, Wal-Mart argues for a deadline by which utilities who have made use of the Interim Rate Policy must file a full rate case. Wal-Mart also supports the concept of some type of sharing of risk with shareholders.

101. Alcoa asserts that the Proposed Policy Statement is silent about cost allocation issues associated with smart grid costs and argues that the Commission should specify that smart grid costs will be allocated in accordance with long-standing cost causation principles.<sup>142</sup> In particular, Alcoa argues that consideration of cost causation and allocation based on proportional benefits should be specified so that, for example, stable high load-factor loads would not be over-burdened by the allocation of costs for smart

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<sup>139</sup> NARUC Comments at 12.

<sup>140</sup> AARP Comments at 4, 13-15.

<sup>141</sup> Wal-Mart Comments at 6-7.

<sup>142</sup> Alcoa Comments at 6-7.

grid equipment deployed primarily to support variable loads and resources.<sup>143</sup>

Meanwhile, GridSolar states that existing cost allocation schemes within RTOs may unduly favor the development of transmission over competing distributed energy projects by allocating costs regionally while a competing distributed energy project might only qualify for local cost allocation.<sup>144</sup> GridSolar urges the Commission to require that, where distributed energy projects incorporating smart grid technologies and practices have been approved by a state regulatory commission in lieu of transmission reliability upgrades, these distributed energy projects receive the same cost allocation treatment as transmission reliability upgrades.

102. Several entities comment on broad market design issues. CPower, in an appendix to its filing, includes a letter to the Commission dated February 24, 2009 that includes various rate proposals.<sup>145</sup> The letter includes proposals for how demand response should participate in various RTO markets. Academic Commenters believe that the Proposed Policy Statement does not go far enough because it fails to provide guidance on the revised market structures that they believe would be needed to realize the benefits of a smart grid.<sup>146</sup> BP makes similar comments, focusing primarily on the

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<sup>143</sup> Id. at 7.

<sup>144</sup> GridSolar Comments at 6-8.

<sup>145</sup> CPower states that this letter was originally submitted in connection with the Commission's demand response stakeholder process. It is not entirely clear what stakeholder process is referenced but it appears to have been an informal submission.

<sup>146</sup> Academic Commenters Comments at 1-13.

possibility of moving away, at least partially, from the current model of centrally dispatched large-scale generation with passive load to a more decentralized decision-making process more like other commodities markets.<sup>147</sup> CAISO indicates that a wholesale energy and transmission market that allows a more refined and granular understanding of what is happening on the grid would take better advantage of smart grid capabilities.<sup>148</sup> NEMA points out that some smart grid technologies, like Phasor Measurement Units and associated software, could have benefits beyond those identified in the Proposed Policy Statement.<sup>149</sup>

#### Commission Determination

103. The Commission will adopt an Interim Rate Policy allowing the recovery of jurisdictional smart grid costs if certain showings are made, as discussed in the next section. Through this Interim Rate Policy, the Commission will provide for assurance of recovery of future smart grid costs. To receive this assurance, a public utility must file either a petition for declaratory order or an FPA section 205 filing demonstrating that it has made the relevant showings described below. This Interim Rate Policy will be effective until relevant interoperability standards have been adopted through Commission rulemakings, as provided for under EISA section 1305(d).<sup>150</sup> There are certain potentially

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<sup>147</sup> BP Comments at 3-6.

<sup>148</sup> CAISO Comments at 3-4.

<sup>149</sup> NEMA Comments at 7-8.

<sup>150</sup> Thus, utilities that want to receive the benefit of this Interim Rate Policy must submit their filings seeking such treatment prior to the issuance of a final rule adopting relevant standards.

imminent challenges to the operation of the nation's bulk-power system as described earlier, and the key smart grid-related capabilities identified in this Policy Statement can help address these concerns. Utility equipment that performs Commission-jurisdictional activities could be affected by many of these smart grid-related investments.

Accordingly, we find that the adoption of the Interim Rate Policy is appropriate.

104. Several commenters argue that having an Interim Rate Policy for smart grid investments is premature, citing unresolved technical issues, such as interoperability standards. However, waiting for all technical issues to be resolved before beginning investment in smart grid deployment would frustrate the development of those very standards. Smart grid resources deployed with appropriate protections in the interim period could increase our body of knowledge and ultimately assist the standards development process. In this case, the Commission proposed several protections, in the form of additional showings, to be discussed in the next section.

105. Several commenters seek to modify rate treatments other than those targeted by the Commission in the Proposed Policy Statement. Allegheny Companies seek a decoupling of electricity sales from revenues to encourage utilities to develop these technologies even though they may lead to lower electricity revenues. The Commission finds that Allegheny Companies' proposal is beyond the scope of this Policy Statement.

106. Alcoa's arguments regarding cost allocation are outside the scope of this Policy Statement. We have not proposed any modification to currently-effective cost allocation

policies for Commission-jurisdictional transmission rates. For similar reasons, we decline to address GridSolar's request to modify cost allocation methods within RTOs, Valley Group's real-time ratings incentive proposal, and the comments on broad market design.

107. Smart grid costs may be recovered through formula rates if the formula rate already authorizes cost recovery of a particular type of investment. In this case, the public utility may recover that cost as it would any other recoverable cost. However, in the event the public utility desires the assurance of cost recovery provided under the Interim Rate Policy, it must submit an FPA section 205 filing or a request for a declaratory order justifying such rate treatment by making the demonstrations required herein.<sup>151</sup> In the absence of a Commission order approving such a proposal, a smart grid-related cost automatically incorporated into a formula rate could be subject to future review and challenge.

108. Finally, with regard to Wal-Mart's proposal for a stated deadline for terminating or revisiting the Interim Rate Policy, the Interim Rate Policy is structured to allow applicants to file with the Commission for rate treatment under the Interim Rate Policy until the Commission adopts relevant interoperability standards. This is necessary because standards will likely be filed for certain functions before others and setting an arbitrary deadline may result in rate treatment for some standards and not others.

<sup>151</sup> The Commission will allow a public utility to file to amend a formula rate to recover such costs and to seek rate assurance under this Interim Rate Policy without reopening other elements of the formula rate.



Moreover, our regulations, which are based on the requirements of the FPA, provide customers with the ability to file complaints if they believe that an existing rate has become unjust or unreasonable. Because this Interim Rate Policy provides protections in addition to such existing protections, nothing more is needed here.

## **2. Additional Showings**

109. In the Interim Rate Policy, the Commission proposed to require applicants seeking the recovery of costs associated with smart grid investments made during the period in which interoperability standards are being developed to make several showings, beyond the normal filing requirements, before being considered “used and useful” and therefore eligible to recover such costs. First, the Commission proposed that an applicant must demonstrate that the reliability and security of the bulk-power system will not be adversely affected by the deployment of smart grid facilities at issue. Second, the Commission proposed that the filing be required to show that the applicant has minimized the possibility of stranded costs for smart grid equipment, in light of the fact that such filings will predate adoption of interoperability standards through Commission rulemakings. Finally, because it would be important for early smart grid deployments,

particularly pilot and demonstration projects, to provide feedback useful to the interoperability standards development process, the Commission proposed to direct the applicant to share certain information with the Department of Energy Smart Grid Clearinghouse, provided for in the American Recovery and Reinvestment Act (ARRA).<sup>152</sup>

### Comments

110. Midwest ISO Transmission Owners fully support the Commission's proposals regarding the used and useful determination for smart grid costs.<sup>153</sup> Ice Energy supports the proposed eligibility requirements and discusses how its own thermal-storage air conditioning technology meets those requirements and could aid utility compliance with those requirements as well.<sup>154</sup> Public Interest Organizations support the criteria already included in the Interim Rate Policy, and also propose two additional criteria: first, a requirement that the smart grid cost in question be vetted through a regional planning process and that such planning process demonstrates the value of such investments for meeting reliability, security, dispatchable demand response, or renewable energy integration needs, and second, a requirement to perform a cost/benefit analysis.<sup>155</sup> Ohio Counsel states that it fully supports the comments made by Public Interest Organizations but would add further emphasis to the need for a comprehensive plan based upon

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<sup>152</sup> American Recovery and Reinvestment Act, Pub. L. No. 111-5, sec. 405(3) (2009).

<sup>153</sup> Midwest ISO Transmission Owners Comments at 7.

<sup>154</sup> Ice Energy Comments at 19-20.

<sup>155</sup> Public Interest Organizations Comments at 4.

appropriate criteria to insure prudence in project scope, implementation, and cost recovery. It views this as necessary to insure that the cost/benefit analysis of the deployment will be favorable and that the guidelines for cost recovery are prudent and net of operation and asset management benefits.<sup>156</sup>

111. NRECA states that smart grid deployments should not exceed “the pace of value” with new elements entering the system only as they are able to demonstrate value.<sup>157</sup>

Ohio Partners and Maryland Counsel similarly argue that the benefits to customers must be shown before cost recovery is granted.<sup>158</sup> Likewise if any Interim Rate Policy is finalized, ELCON believes that it must incorporate a cost/benefit requirement.<sup>159</sup>

112. Several commenters<sup>160</sup> also support the addition of a cost-effectiveness requirement. In this regard, North Carolina Agencies stress the need for coordination with the affected state commissions, and Wal-Mart points to item number six in the document “Proposed Funding Criteria for the ARRA Smart Grid Matching Grant Program” recently proposed by the NARUC/FERC Smart Grid Collaborative to the

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<sup>156</sup> Ohio Counsel Comments at 1-3.

<sup>157</sup> NRECA Comments at 13-14.

<sup>158</sup> Ohio Partners and Maryland Counsel Comments at 5-6.

<sup>159</sup> ELCON Comments at 10.

<sup>160</sup> CPower Comments at 2, Alcoa Comments at 9, PSEG Companies Comments at 2, North Carolina Agencies Comments at 3, and Wal-Mart Comments at 6.

Department of Energy, which proposes a variety of information requirements that could be used to help determine cost-effectiveness. Springfield argues that utilities should be required to demonstrate that they are following best utility practices, and should be required to demonstrate the incremental benefit of smart grid deployment as if such best practices were in place.<sup>161</sup>

113. Illinois Commission argues that the Commission's proposed requirements seem to assume that smart grid proposals are economically justified by their very nature.<sup>162</sup>

Illinois Commission points out that under the Department of Energy's grant criteria, a smart grid project could be denied grant funding if it fails to adhere the Institute-published standards, but under the Interim Rate Policy the same project could receive rate recovery and, in particular, guaranteed recovery of abandonment costs. Illinois Commission seeks clarification that this would not be automatically permitted. Instead, Illinois Commission argues that during the period between when the Institute publishes standards and the Commission adopts them through rulemaking, any affected smart grid rate recovery applicants should have the burden to establish that such project remains used and useful.<sup>163</sup> Illinois Commission and AWEA also urge the Commission to limit application of the Interim Rate Policy to only those smart grid projects that further the Commission's goals associated with the two cross-cutting issues and priority

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<sup>161</sup> Springfield Comments at 10.

<sup>162</sup> Illinois Commission Comments at 4.

<sup>163</sup> *Id.* at 6. Maryland Counsel Comments at 5, n.4.

functionalities identified in the Proposed Policy Statement.<sup>164</sup> Finally, Illinois Commission also argues that the Commission should maintain a traditional cost-causation, beneficiary-pays cost allocation methodology and, in particular, prohibit broad socialization of such costs within RTOs.<sup>165</sup>

114. Michigan Commission argues that the Interim Rate Policy should be applied carefully and conservatively to avoid inefficient spending on equipment that does not promote real progress toward true smart grid functionality. Michigan Commission is particularly concerned about permitting cost recovery for smart grid deployments that cannot be upgraded to final interoperability standards. Accordingly, it argues that if the Commission proceeds with an Interim Rate Policy, it should clarify that its eligibility criteria will be strictly applied and only available to investments that create significant new smart grid functionality or serve as the basis for upgrading or expanding such functionality in the future.<sup>166</sup>

115. Indianapolis P&L also supports the proposed criteria but requests that the Commission apply these criteria with some degree of flexibility given that national smart grid development is a work-in-progress. Specifically, Indianapolis P&L suggests that the need to demonstrate good faith adherence to the smart grid vision articulated in EISA may be complicated by the early stage of the interoperability process generally. In this

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<sup>164</sup> Illinois Commission Comments at 6-7 and AWEA Comments at 11-12.

<sup>165</sup> Illinois Commission Comments at 7.

<sup>166</sup> Michigan Commission Comments at 10-12.

regard, Indianapolis P&L suggests that any evaluation of applicant good faith decisions take into account the state of affairs at the time any decisions were made.<sup>167</sup> Regarding the requirement to share information with the Department of Energy Smart Grid Clearinghouse, Indianapolis P&L respectfully requests that confidential and commercially-sensitive information not be demanded or that appropriate protections be permitted to apply.<sup>168</sup>

116. FirstEnergy urges the Commission not to require applicants to make showings that would be unreasonable, overly burdensome, or inflexible such that any proposed cost recovery would discourage investment. It does not, however, specify whether any of the Commission's proposed eligibility criteria would fall into this category.<sup>169</sup> DRSG Coalition, on the other hand, seems to argue that some of the Commission's proposed security criteria for cost recovery may be overly burdensome.<sup>170</sup>

117. SDG&E proposes that, where an application for rate recovery or incentives involves the utility's share of the cost of a project receiving partial Department of Energy funding, the Commission could deem the utility's share of the investment per se prudent as used and useful plant so that rate recovery of such costs would be deemed per se just and reasonable. If this proposal is not adopted outright, then SDG&E argues that the

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<sup>167</sup> Indianapolis P&L Comments at 4.

<sup>168</sup> Id. at 4-5.

<sup>169</sup> First Energy Comments at 10.

<sup>170</sup> DRSG Coalition Comments at 9-10.

Commission should at least apply a rebuttable presumption that such costs are per se prudent and their rate recovery would be per se just and reasonable.

118. AARP argues that the Commission's proposed eligibility criteria are equivalent to "near automatic rate recovery" for new investments labeled "smart grid."<sup>171</sup> AARP does not believe that the Commission's statutory responsibility to insure just and reasonable rates can be fulfilled with such criteria. First, it asserts that the Commission has failed to identify the specific investments, devices, or other systems that would or could be subject to the proposed Interim Rate Policy. It also asserts that the Commission should require applicants to affirmatively demonstrate benefits, such as enhanced reliability, as a condition for rate recovery. It also seems to argue that rate recovery should not be granted unless the applicant can demonstrate that the smart grid equipment in question can be upgraded.<sup>172</sup> Finally, AARP proposes that the Commission require applicants to demonstrate that their investments have been reviewed and approved by state regulators when those investments are intimately related to, and coordinated with, investments that are subject to state regulatory authorities.<sup>173</sup>

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<sup>171</sup> AARP Comments at 10.

<sup>172</sup> The Proposed Policy Statement encourages upgradeability but stops short of requiring it because it may not always be technically or economically feasible. Proposed Policy Statement, 126 FERC ¶ 61,253 at P 49.

<sup>173</sup> AARP Comments at 10-12.

119. APPA has two concerns in this area.<sup>174</sup> First, it is concerned that only smart grid costs associated with wholesale rates and transmission functions be recovered through filings under this proposal. It argues that the cost of smart grid installations that support retail service should be recovered in retail rates. Second, APPA opposes the Commission's proposal to consider smart grid devices and equipment to be used and useful for cost recovery purposes if the applicant meets the criteria set out in the Proposed Policy Statement. APPA believes that such treatment shifts the burden of proof from the applicant to customers opposing such a finding. Third, APPA believes that applicants for smart grid-related rate recovery or incentives should be required to show that their suppliers have attested to the integrity of the components used in the smart grid installation in question.

120. Kansas Commission concurs with the need to provide certainty and guidance regarding cost recovery issues but expresses concerns regarding the three criteria proposed by the Commission. Specifically, it prefers that more traditional demonstrations of the used and useful requirement be preserved and also supports a cost/benefit requirement.<sup>175</sup> Massachusetts Attorney General believes that no smart grid costs should be eligible for rate recovery until after the Institute provides guidance on which technologies are most cost effective and where device deployment will be most

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<sup>174</sup> APPA Comments at 16-17, 19.

<sup>175</sup> Kansas Commission Comments at 7-8.



valuable.<sup>176</sup> Massachusetts Attorney General also recommends that the Commission require applicants to demonstrate that they maximized all opportunities to secure federal funding to offset the costs associated with smart grid deployment.

121. Citizens Coalition opposes the proposal to find smart grid equipment used and useful if three conditions are met on the basis that such changes are “simply dishonest manipulation of traditional utility principles.”<sup>177</sup> It also expresses concern with the proposal to require good faith efforts to adhere to the vision of a smart grid described in Title XIII of EISA. Specifically, it opposes a “good faith” standard and instead urges that applicants be required to show that they acted reasonably and prudently, which it characterizes as a standard of reasonableness.

#### Commission Determination

122. To help inform our review for rate approval of smart grid costs, an applicant seeking the recovery of smart grid costs must make four demonstrations. The first, and threshold, demonstration is that an applicant must show that the smart grid facilities will advance the goals of EISA section 1301. Second an applicant must show that the reliability and cybersecurity of the bulk-power system will not be adversely affected by the deployment of the smart grid facilities at issue. Third, the applicant must show that it has minimized the possibility of stranded investment in smart grid equipment, in light of the fact that such filings will predate adoption of interoperability standards. Finally,

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<sup>176</sup> Massachusetts Attorney General Comments at 3-4.

<sup>177</sup> Citizens Coalition Comments at 10, 12-13.

because it will be important for early smart grid deployments, particularly pilot and demonstration projects, to provide feedback useful to the interoperability standards development process, an applicant must agree to provide feedback useful to the interoperability standards development process, by sharing information with the Department of Energy Smart Grid Clearinghouse.

123. To make the first and threshold demonstration, an applicant must describe the proposed investment (including the technologies, systems, and applications it entails) and how it is consistent with the policy and one or more of the goals Congress set forth in section 1301 of EISA. In section 1301 of EISA, Congress made clear that “it is the policy of the United States to support the modernization of the Nation’s electricity transmission and distribution system to maintain reliable and secure electricity infrastructure that can meet future demand growth” and to achieve certain goals, “which together characterize a Smart Grid.”<sup>178</sup> Those goals include increased use of digital information and controls technology to improve reliability, security, and efficiency of the electric grid, dynamic optimization of grid operations and resources, with full cybersecurity, and deployment and integration of distributed resources and generation, including renewable resources, demand side resources and energy efficiency resources. This threshold showing was implicit in the Proposed Policy Statement, but in light of many comments we received, we now state it explicitly.

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<sup>178</sup> EISA sec. 1301.

124. In order to make the second showing, an applicant must describe how its proposed deployment of smart grid equipment will maintain compliance with Commission-approved Reliability Standards, such as the CIPS Reliability Standards, during and after the installation and activation of smart grid technologies so the reliability and cyber security of the bulk-power system will not be jeopardized. An applicant must also address: (1) the integrity of data communicated (whether the data is correct), (2) the authentication of the communications (whether the communication is between the intended smart grid device and an authorized device or person), (3) the prevention of unauthorized modifications to smart grid devices and the logging of all modifications made, (4) the physical protection of smart grid devices, and (5) the potential impact of unauthorized use of these smart grid devices on the bulk-power system.

125. To make the third showing concerning potential stranded smart grid investment, applicants must show how they have relied to the greatest extent practical on existing,

widely adopted and open<sup>179</sup> interoperability standards; and where feasible, relied on systems and firmware that can be securely upgraded readily and quickly.

126. Finally, to make the showing concerning the sharing of information, an applicant must agree to share with the Department of Energy Smart Grid Clearinghouse the same information required by the Department of Energy for its grant program. While in the Proposed Policy Statement the Commission initially proposed seven specific categories of information to be shared, modeled on a similar proposal made to the Department of Energy by the NARUC/FERC Smart Grid Collaborative, the Department of Energy has now released its final information sharing requirements and we will rely on those requirements instead.

127. Some commenters argue that these showings represent a departure from traditional ratemaking practice. We disagree. These showings do not replace the Commission's existing demonstrations, but supplement them. The supplemental information is needed in this case to assure the Commission that recovery of investments

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<sup>179</sup> An open architecture is publicly known, so any and all vendors can build hardware or software that fits within that architecture, and the architecture stands outside the control of any single individual or group of vendors. In contrast, a closed architecture is vendor-specific and proprietary, and blocks other vendors from adoption. An open architecture encourages multi-vendor competition because every vendor has the opportunity to build interchangeable hardware or software that works with other elements within the system. See Gridwise Architecture Council Decision-Maker's Interoperability Checklist Draft Version 1.0, [http://www.gridwiseac.org/pdfs/gwac\\_decisionmakerchecklist.pdf](http://www.gridwiseac.org/pdfs/gwac_decisionmakerchecklist.pdf). We note that Congress recently made utilization of open protocols and standards, if available and appropriate, a condition of receiving funding from the Department of Energy for demonstration projects and grants pursuant to EISA sec. 1304 and 1306. See ARRA sec. 405(3) and 405(8).

in these new technologies, in some cases still experimental, are serving the interests of consumers while advancing the effort to create a smart grid. Further, although the Commission generally does not allow the recovery of new costs outside a rate case, we will do so for smart grid costs as explained further below, and this fact alone creates a need for additional filing requirements designed for just these costs. Here we are allowing cost recovery for jurisdictional smart grid costs based on traditional standards of review with an added showing that the technologies will not adversely affect the security and reliability of the grid, have minimized potential stranded investment related to consistency with interoperability standards as they are fully developed over time, and assist in providing information for future projects. Such considerations are fully consistent with the “used and useful” standard, and are the proper determinations for the Commission to make when considering whether a smart grid cost is just and reasonable in this interim period before a substantial body of relevant interoperability standards are adopted through Commission rulemaking.

128. These considerations do not constitute automatic rate recovery for smart grid projects, as some commenters have suggested. The Commission has laid out specific showings that must be made, in addition to normal rate filing requirements, for rate recovery for a smart grid project to be approved. The burden is on the applicant to make these showings.

129. The Commission rejects the arguments that a formal cost/benefit or cost-effectiveness analysis should be required in addition to these three filing requirements. Under section 205 of the FPA, the Commission already considers whether rates are just and reasonable and not unduly discriminatory. Formal quantitative analyses typically contain some areas with highly subjective benefits that could lead to protracted debate between each side's experts and increase the cost of litigation. Further, a cost-benefit analysis would be particularly infeasible in this instance. For example, if the benefits of smart grid deployment were to include enhanced ability to accommodate changes in generation mix, including heavier reliance on renewable generation, then the costs of failure to deploy such technology could potentially include such hard-to-quantify costs as the results of global climate change. Such cost estimates will be highly dependent on a broad range of assumptions and would likely be highly contentious in every case. Accordingly, the value of such a requirement would be questionable. In any event, intervenors in rate proceedings can and do raise the issue of whether utility investments were prudently made in light of their costs and they may continue to do so.

130. Several commenters state that the Commission should identify what devices will be eligible for smart grid rate recovery. The Commission will not attempt to list all the particular facilities, equipment, or devices that are eligible or ineligible. In response to APPA and others, and as noted above, rate recovery will apply only to smart grid costs within the Commission's FPA jurisdiction. EISA does not alter the FPA's jurisdictional

boundaries between federal and state regulation over the rates, terms, and conditions of transmission service and sales of electricity.

### **3. Incentives Under the Interim Rate Policy**

131. In its Proposed Policy Statement the Commission proposed several incentive rate treatments for smart grid costs. These rate treatments are meant to encourage the adoption of and investment in smart grid technologies.

#### **a. Single Issue Ratemaking**

132. As part of the Interim Rate Policy, the Commission proposed that jurisdictional entities should be able to recover costs for used and useful smart grid facilities on a single issue basis. That is, entities would be able to recover the cost of smart grid investments without having to open their entire rate base to Commission review.

#### Comments

133. Some commenters<sup>180</sup> support the Commission's proposal to permit single issue rate filings for qualifying smart grid investments. NYISO notes that allowing jurisdictional transmission owners to recover the cost of investment in new controls and communication devices may assist in stimulating needed investment.<sup>181</sup> Midwest ISO Transmission Owners state that such a policy will encourage investment because it allows transmission owners to invest in smart grid equipment without running the risk that other

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<sup>180</sup> SDG&E Comments at 24-25, Indianapolis P&L Comments at 3-4, Black Hills Corp. Comments at 4, Midwest ISO Transmission Owners Comments at 3-7, and Allegheny Companies Comments at 8.

<sup>181</sup> NYISO Comments at 12.

aspects of their system-wide rates will become subject to review and possible alteration.<sup>182</sup>

134. Several commenters argue against the proposed single issue ratemaking, and state that the Commission should adhere to traditional ratemaking practices.<sup>183</sup> ELCON states that such cost recovery is premature, given unresolved technical issues.<sup>184</sup> APPA argues that single issue ratemaking for smart grid technology could lead to an over-recovery of costs, and is part of a trend in which the Commission overlooks its duty to insure just and reasonable rates in the name of current policy goals.<sup>185</sup> Commenters also argue against treating approved smart grid technologies as used and useful.<sup>186</sup> Citizens Coalition opposes any special rate treatment for smart grid equipment, as does ELCON for the same reasons that it opposes finalization of the Interim Rate Policy generally.<sup>187</sup>

135. EEI also argues that for purposes of smart grid-related single issue rate filings, the Commission should consider providing waiver of the full financial data requirements in the Commission's regulations. In particular, EEI argues that Period I data may be

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<sup>182</sup> Midwest ISO Transmission Owners Comments at 4.

<sup>183</sup> NRECA Comments at 11-13, Maryland Counsel Comments at 2, 4-5, Ohio Partners Comments at 9-10, ELCON Comments at 9-10, and Citizens Coalition Comments at 12-14.

<sup>184</sup> ELCON Comments at 9-10.

<sup>185</sup> APPA Comments at 17-18.

<sup>186</sup> NRECA Comments at 11-13, Maryland Counsel Comments at 4, and Ohio Partners at 9-10.

<sup>187</sup> Citizens Coalition Comments at 14 and ELCON Comments at 13.



adequate for determining whether such rates are just and reasonable and the otherwise required Period II data may not be needed.

#### Commission Determination

136. The Commission will allow single issue rate treatment for the recovery of costs associated with smart grid investments as part of its Interim Rate Policy. Although the Commission generally does not allow the recovery of new costs outside a rate case that considers all costs, the Commission has entertained exceptions for special cases. For example, in implementing FPA section 219, as enacted in the Energy Policy Act of 2005, the Commission has stated that it would allow single issue rate treatment for new transmission projects.<sup>188</sup> Furthermore, such rate treatment is not unheard of in other jurisdictions; retail rates may include surcharges to the base rates in order to recover unusual, or “single issue,” costs.<sup>189</sup> Here the Commission will allow single issue rate treatment in response to a pressing need for the development of new and innovative smart grid capabilities that will be needed by the electric system, and in response to a statutory directive to support the modernization of the electric grid. This will in no way affect the

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<sup>188</sup> Promoting Transmission Investment Through Pricing Reform, Order No. 679, FERC Stats. & Regs. ¶ 31,222, at P 191 (2006), order on reh’g, Order No. 679-A, FERC Stats. & Regs. ¶ 31,236 (2006), order on reh’g, 119 FERC ¶ 61,062 (2007).

<sup>189</sup> See, e.g., Kan. Stat. Ann. sec. 66-117(f) (2009), Pa. Pub. Util. Code sec. 2804(16)(ii) (2009) and WUTC v. Puget Sound Energy, Inc., Docket Nos. UE-011570 and UG-011571, at P 25 and 27 (2002).

ability of customers to file a complaint pursuant to section 206 of the FPA if they believe that the ultimate rate charged by the public utility is no longer just and reasonable.

137. As to EEI's request for clarification regarding waiver of the full financial data requirements in the Commission's regulations, the Commission already permits applicants to seek such waiver on a case-by-case basis. On the record before us, we see no need for a blanket waiver. Applicants seeking such a waiver must retain the burden for supporting the waiver.

**b. Recovery of Stranded Costs for Legacy Systems**

138. The Commission also proposed to permit applicants to seek recovery of the otherwise stranded costs of legacy systems that are to be replaced by smart grid equipment. The Commission stated that an appropriate plan for the staged deployment of smart grid equipment, which could include appropriate upgrades to legacy systems where technically feasible and cost-effective, could help minimize the stranding of unamortized costs of legacy systems. The Commission therefore proposed that any request to recover stranded legacy system costs must demonstrate that such a migration plan has been developed.

**Comments**

139. AARP argues that the proposed stranded cost policies for legacy systems are unreasonable because they may present significant cost risk exposure to consumers. AARP recommends that the Commission transfer at least some portion of the risks of

stranded costs from ratepayers to shareholders.<sup>190</sup> APPA states that retail costs, including stranded costs, should not be reflected in wholesale rates. APPA also argues that applicants should be required to make every effort to minimize the stranding of legacy costs through phased integration strategies.<sup>191</sup> Citizens Coalition opposes any recovery of the stranded legacy costs of legacy systems, stating that past stranded cost proceedings cost consumers billions of dollars.<sup>192</sup> It argues that smart grid advocates should reimburse utilities and their customers for such costs if they wish to replace such systems prematurely. ELCON also opposes permitting recovery of the stranded cost of legacy systems.<sup>193</sup> NRECA argues that if the Commission's discussion of permitting applicants to seek stranded cost recovery was meant to change existing ratemaking policies, the Commission must provide more justification for doing so and detailed criteria for evaluating such applications.<sup>194</sup> Additionally, several commenters argue that every effort should be made to minimize the stranding of legacy costs.<sup>195</sup>

140. Other commenters support the Commission's proposals with respect to recovery of the stranded investment in legacy systems to be replaced by smart grid equipment,

<sup>190</sup> AARP Comments at 12-13.

<sup>191</sup> APPA Comments at 20.

<sup>192</sup> Citizens Coalition Comments at 9, 14.

<sup>193</sup> ELCON Comments at 13.

<sup>194</sup> NRECA Comments at 14-15.

<sup>195</sup> Ohio Partners Comments at 11, National Grid Comments at 7, and Maryland Counsel Comments at 6.

including the proposals meant to minimize such stranded costs.<sup>196</sup> FirstEnergy also proposes that the Commission consider permitting accelerated depreciation or amortization for legacy systems to be replaced with smart grid equipment.<sup>197</sup>

#### Commission Determination

141. As part of the Interim Rate Policy, the Commission will allow single issue rate treatment of otherwise stranded costs for jurisdictional legacy systems being replaced by jurisdictional smart grid equipment, provided that proposals to recover these costs are supported by an equipment migration plan that minimizes the stranding of unamortized costs of legacy systems. Elsewhere in this document, the Commission discusses several major potential challenges to the operation of the bulk-power system, and the smart grid capabilities that could help address those challenges. We view these challenges as potentially serious enough to justify making the development of these smart grid capabilities a high priority. Accordingly, if developing these capabilities requires the early replacement of some legacy equipment, we would view that as a strong argument for doing so, and would not necessarily render these previously-approved investments imprudent.

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<sup>196</sup> SDG&E Comments at 26, FirstEnergy Comments at 10, Midwest ISO Transmission Owners Comments at 9-11, PSEG Companies Comments at 8, and Black Hills Corp. Comments at 4.

<sup>197</sup> First Energy Comments at 10.

**c. Additional Incentive Rate Treatments**

142. The Commission also stated that it will entertain requests for rate treatments such as accelerated depreciation and abandonment authority (whereby an applicant is assured of recovery of abandoned plant costs if the project is abandoned for reasons outside the control of the public utility) specifically tied to smart grid deployments under our FPA section 205 authority. The Commission stated that any requests for such rate treatment for smart grid costs would need to address all of the requirements for rate recovery and make the showings described in FPA section 205. The Commission also stated that it would consider applying these rate treatments to the portion of a smart grid pilot or demonstration project's cost that is not already paid for by Department of Energy funds, such as those authorized by EISA sections 1304 and 1306.<sup>198</sup> The Commission further stated that to the extent that such showings are made as discussed, it proposed to consider permitting abandonment authority to apply to any smart grid investments that, despite reasonable efforts, could not be upgraded and must ultimately be replaced if found to conflict with the final standards approved in the Institute's standards development process.

Comments

143. SDG&E supports the Commission's incentive proposals, particularly as to accelerated depreciation and the opportunity to recover the costs of abandoned plant. However, SDG&E seeks clarification that the Commission will entertain rate requests for

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<sup>198</sup> To be codified at 42 U.S.C. 17384 and 17386.

abandoned plant costs over and above undepreciated capital costs, including other costs associated with abandoned facilities such as costs of early or premature contract termination.<sup>199</sup>

144. In contrast, AARP urges caution regarding incentives for smart grid equipment before the adoption of final interoperability standards and proposes that requests for such incentives should be required to document the costs and benefits that will ultimately be borne by retail consumers. As with cost recovery generally, AARP argues that the Commission should identify specific investments, devices, or other systems that would or could be eligible for incentive treatment under this proposed policy. AARP argues that, at a minimum, requests for incentive treatment should be required to document the actual and improved reliability benefits from such investments and the applicant should bear all of the risk that those benefits will actually occur. Citizens Coalition opposes any special rate treatment for smart grid equipment, as does ELCON for the same reasons that it opposes finalization of the Interim Rate Policy generally.<sup>200</sup> NRECA states that if the Commission's discussion of permitting applicants to seek rate treatments such as accelerated depreciation and abandonment authority was meant to change existing ratemaking policies, the Commission must provide more justification for doing so and detailed criteria for evaluating such applications.<sup>201</sup>

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<sup>199</sup> SDG&E Comments at 26-27.

<sup>200</sup> Citizens Coalition Comments at 14 and ELCON Comments at 13.

<sup>201</sup> NRECA Comments at 14-15.

145. Massachusetts Attorney General urges the Commission to consider prohibiting, or at least significantly limiting, applicants' ability to recover return on equity incentive adders for smart grid investments. It argues that the potential risks associated with smart grid investments are minimal compared to large-scale transmission projects, especially in light of Department of Energy support through stimulus funding.<sup>202</sup>

146. In contrast, Allegheny Companies recommend that three additional rate treatments be permitted: incentive return on equity, recovery of a return on 100 percent of construction work in progress, and the expensing of pre-commercial costs.<sup>203</sup>

Allegheny Companies also support the proposals regarding accelerated depreciation and abandonment but request that applicants be permitted to demonstrate on a case-by-case basis significantly shorter depreciable lives for early smart grid investments without needing to demonstrate that such shorter lives are required for cash flow purposes.<sup>204</sup>

147. Valley Group asserts that real-time transmission ratings could reduce congestion cost by enabling more of the existing capacity of transmission facilities to be used safely, and proposes a new rate incentive tied to investment associated with enabling real-time transmission ratings.<sup>205</sup>

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<sup>202</sup> Massachusetts Attorney General Comments at 5-6.

<sup>203</sup> Allegheny Companies Comments at 6-7.

<sup>204</sup> *Id.* at 8-9.

<sup>205</sup> Valley Group Comments at 2, 5-6.

148. Finally, ITC Companies and EEI request clarification regarding the interplay between Order No. 679 and the incentive rate treatments discussed in the Interim Rate Policy. ITC Companies request that the Commission clarify that smart grid technologies applicable to the transmission system are considered advanced transmission technologies eligible for transmission rate incentives under Order No. 679.<sup>206</sup> EEI asks the Commission to clarify whether the Commission will differentiate between devices that qualify for advanced technology incentives under Order No. 679 and those that qualify under the Interim Rate Policy; or whether the same technology may qualify for either incentive. EEI also requests that the Commission clarify whether projects receiving treatment under the Interim Rate Policy preclude smart grid projects from receiving incentives under Order No. 679.<sup>207</sup> AARP argues that such single issue rate filings should be required to adhere to the Commission's regulations and conform to procedures enacted under FPA section 219.<sup>208</sup>

#### Commission Determination

149. The Commission will permit utilities to request accelerated depreciation and abandonment authority under the terms of its Interim Rate Policy under FPA section 205. As discussed elsewhere in this Policy Statement, smart grid investment can help address

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<sup>206</sup> ITC Companies Comments at 8-10.

<sup>207</sup> EEI Comments at 15.

<sup>208</sup> AARP Comments at 13-15



major challenges facing the bulk-power system. However, as with any section 205 filing or petition for declaratory order, the Commission will make the rate determination based on the specific facts and circumstances presented, including the relationship to other incentives, if any.

**4. Potential Interplay with Department of Energy Funding Grants**

150. Subsequent to the Commission's issuance of the Proposed Policy Statement, the Department of Energy announced two smart grid funding opportunities for up to fifty percent of the costs of certain smart grid projects. In addition, the Department of Energy planned to require applicants to identify the source of non-Department of Energy funds, along with some evidence as to the certainty of these funds.

151. Given that applicants for these programs might include jurisdictional public utilities that seek rate recovery through Commission-jurisdictional rates for the non-Department of Energy portion of funds for transmission-related projects, the Commission sought supplemental comments on the matter. The Commission received 16 supplemental comments.

Comments

152. There are two major themes in the supplemental comments. First, the investor-owned electric industry is supportive of the Commission's proposal to conditionally approve rate adjustments on smart grid projects, including those eligible for Department of Energy funding. EEI is fully supportive of the Commission's smart grid Interim Rate

Policy proposal, stating that it provides certainty and incentives for utilities to aggressively pursue Department of Energy funding.<sup>209</sup> Without interim rate policies, utilities may be less willing or unable to pursue Department of Energy funding. EEI encourages the Commission to issue its Interim Rate Policy before the Department's release of its June 17, 2009 final funding opportunity documents, and certainly prior to the July 29 project submission deadline. EEI supports rate recovery of upgrades to legacy systems and rate recovery of stranded costs resulting from smart grid upgrades.<sup>210</sup> EEI also states that expedited rate adjustments can be accomplished through formula rates.<sup>211</sup> SDG&E, PSEG, PG&E, and the New York Transmission Owners all filed comments in support of the Commission's Interim Rate Policy proposals.<sup>212</sup> None of the Investor Owned Utility commenters suggests that the Commission adopt a separate rate policy for investments supported by Department of Energy funds.

153. Second, the public power sector, energy consumer representatives, and state regulatory commissions oppose or have serious reservations about the Commission's policy proposal. NRECA and ELCON continue to oppose the Commission's Interim Rate Policy proposal generally. NRECA stresses that the Commission should strictly adhere to the just and reasonable requirements of the FPA.<sup>213</sup> NRECA's position is that

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<sup>209</sup> EEI Supplemental Comments at 4-5.

<sup>210</sup> *Id.* at 6.

<sup>211</sup> *Id.*

<sup>212</sup> SDGE Supplemental Comments at 1-2, PSEG Supplemental Comments at 1-2, PGE Supplemental Comments at 1, and NYISO Supplemental Comments at 3.

<sup>213</sup> NRECA Supplemental Comments at 4-5.

rate adjustments related to smart grid investments can be processed expeditiously while still following requirements prescribed in the FPA. NRECA also states that cost recovery assurance for facilities not under construction is beyond the Commission's authority.<sup>214</sup> NRECA further states that a careful reading of the Department of Energy draft funding opportunity announcement does not condition grant award upon assurance of recovery of smart grid facilities in rates.<sup>215</sup> Similarly, ELCON states the Commission should proceed carefully and focus on its statutory obligation that utility costs are prudently incurred, and used and useful.<sup>216</sup> ELCON also reaffirms its opposition to the Commission's proposed Interim Rate Policy and states that special rate treatment for smart grid investments is contrary to the FPA.<sup>217</sup>

154. NARUC asserts, as does NRECA, that many if not most of the grant projects will occur on the distribution-retail side of the grid.<sup>218</sup> In consequence, the Commission should not provide funding guarantees for that portion of smart grid projects not covered by Department of Energy grants; state commissions must have the opportunity to review these projects. The Maryland Commission comments mirror NARUC's and NRECA's, opposing the Interim Rate Proposal generally and specifically opposing conditional rate

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<sup>214</sup> *Id.* at 10-11.

<sup>215</sup> *Id.* at 8-9.

<sup>216</sup> ELCON Supplemental Comments at 3.

<sup>217</sup> *Id.* at 3.

<sup>218</sup> NARUC Supplemental Comments at 1.

recovery of projects it considers to be state jurisdictional.<sup>219</sup> The California Commission provided a copy of an order describing how it will review smart grid projects eligible for Department of Energy funds.<sup>220</sup>

155. AARP comments, while not explicitly opposing the Commission's Interim Rate Proposal, say that additional clarity should be provided to the smart grid cost approval process, including conducting a preliminary review of smart grid grant applications to determine whether they are complete.<sup>221</sup> Similarly, the Massachusetts Attorney General stresses that the Commission should have a project approval and monitoring process that focuses on cost containment.<sup>222</sup>

#### Commission Determination

156. Having considered the supplemental comments, the Commission sees no need for special procedures for rate recovery filings for projects that also receive Department of Energy grant funding. The Department of Energy does not require an assurance of rate recovery as a condition for grant funding. In fact, the most recent version of the Department of Energy's Smart Grid Grant Program states that applicants that do not yet have regulatory approval are eligible to receive an award.<sup>223</sup> The more general concerns

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<sup>219</sup> Maryland Commission Supplemental Comments at 1-2.

<sup>220</sup> CPUC Supplemental Comments at 1.

<sup>221</sup> AARP Supplemental Comments at 1-3.

<sup>222</sup> Massachusetts Commission Supplemental Comments at 3-4.

<sup>223</sup> See generally Recovery Act Smart Grid Grant Investment Program, <http://www.grants.gov/search/search.do;jsessionid=fvXjKDLQNQG8kgxwx65nJs4rYhGgThcL9t7KzGZCkqFXSRpGpn9z!1215949849?>

expressed by the commenters regarding the Interim Rate Policy have been addressed in previous sections of this Policy Statement.

### **III. Document Availability**

157. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through the Commission's Home Page (<http://www.ferc.gov>) and in the Commission's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, N.E., Room 2A, Washington D.C. 20426.

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

159. User assistance is available for eLibrary and the Commission's website during normal business hours from Federal Energy Regulatory Commission Online Support at 202-502-6652 (toll free at 1-866-208-3676) or email at [ferconlinesupport@ferc.gov](mailto:ferconlinesupport@ferc.gov), or the Public Reference Room at (202) 502-8371, TTY (202)502-8659. E-mail the Public Reference Room at [public.referenceroom@ferc.gov](mailto:public.referenceroom@ferc.gov).

**IV. Information Collection Statement**

160. Office of Management and Budget’s (OMB) regulations in 5 CFR 1320.11 require that it approve certain reporting and recordkeeping requirements (collections of information) imposed by an agency. Upon approval of a collection of information, OMB assigns an OMB control number and an expiration date. Entities subject to the filing requirements of the Interim Rate Policy will not be penalized for failing to respond to this collection of information unless the collection of information displays a valid OMB control number.

161. The Interim Rate Policy may affect the following existing data collection: Electric Rate Schedule and Tariff Filings (FERC-516) OMB Control No. 1902-0096.

162. The following burden estimate is based on the projected costs for the industry to implement revisions to satisfy the requirements of the Interim Rate Policy if and when rate recovery is sought under that policy:

Data Collection	No. of Respondents	No. of Responses Per Respondent	Hours Per Response	Total No. of Hours
FERC-516	116	1	15	1740
Totals				1740

Total Annual Hours for Collection

(Reporting and Recordkeeping, (if appropriate)) = 1740

163. Information Collection Costs: The Commission projects the average annualized

cost for all respondents to be the following:<sup>224</sup>

	FERC-516
Total Annualized Costs	\$261,000

164. The Commission sought comments on the Interim Rate Policy, among other things, in the Proposed Policy Statement. No comments were filed relating to the burden of reporting or complying with the requirements for seeking rate recovery pursuant to the Interim Rate Policy.

165. The Commission's Interim Rate Policy adopted herein is necessary to encourage the near-term deployment of smart grid systems capable of addressing upcoming challenges to the operation of the bulk-power system. Requiring the information specified in the Interim Rate Policy will encourage this near-term deployment while appropriately protecting customers from stranded costs and the electric system from potential cybersecurity threats.

166. These requirements conform to the Commission's goal for efficient information collection, communication, and management within the electric power industry. The Commission has assured itself, by means of its internal review, that there is specific, objective support for the burden estimates associated with the information requirements.

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<sup>224</sup> The total annualized costs for the information collection is \$261,000. This number is reached by multiplying the total hours to prepare responses (1740 hours) by an hourly wage estimate of \$150 (a composite estimate that includes legal, technical and support staff rates, \$90+\$35+\$25).  $\$261,000 = \$150 \times 1740$ .

167. OMB regulations<sup>225</sup> require it to approve information collection requirements imposed by an agency. The Commission is submitting notification of the Interim Rate Policy to OMB. These information collections are voluntary and apply only to the extent that an entity seeks to benefit from the Interim Rate Policy.

Title: Electric Rate Schedule and Tariff Filings (FERC-516)

Action: Proposed collection.

OMB Control No.: 1902-0096

Respondents: Business or other for profit.

Frequency of Responses: Estimated to be one time per respondent. The Interim Rate Policy will be in effect until relevant interoperability standards have been adopted through Commission rulemaking as provided by the EISA.

Necessity of the Information: The Interim Rate Policy will encourage near-term deployment of smart grid systems capable of helping to address the upcoming challenges to the operation of the bulk-power system associated with the EISA. The information to be collected is necessary to protect customers from stranded costs and the electric system from potential cybersecurity threats. The Commission will use the information in rate proceedings to review rate and tariff changes by public utilities, for general industry oversight, and to supplement the documentation used during the Commission's audit process.

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<sup>225</sup> 5 CFR 1320.12.



168. The Commission is submitting to OMB a notification of these proposed collections of information. For information on the requirements, submitting comments on the collection of information and the associated burden estimates, including suggestions for reducing this burden, please contact the following:

Federal Energy Regulatory Commission  
Attn: Michael Miller, Office of the Executive Director  
888 First Street, N.E., Washington, DC 20426  
Tel: (202) 502-8415 / Fax: (202) 273-0873  
Email: [michael.miller@ferc.gov](mailto:michael.miller@ferc.gov)

Or contact:

Office of Information and Regulatory Affairs  
Office of Management and Budget  
Washington, D.C. 20503  
Attention: Desk Officer for the Federal Energy Regulatory Commission  
(Re: OMB Control Nos. 1902-0096)  
Tel: (202) 395-4638  
E-mail: [omb\\_submissions@omb.eop.gov](mailto:omb_submissions@omb.eop.gov)

## **V. Effective Date and Congressional Notification**

169. The Interim Rate Policy adopted in this Policy Statement is effective [insert date 60 days from publication in Federal Register]. The Commission has determined, with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB, that this Policy Statement is a “major rule” as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996.<sup>226</sup> The Commission will submit this Policy Statement to both houses of Congress and to the Government Accountability Office.

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<sup>226</sup> See 5 U.S.C. 804(2) (2007).

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.

## Appendix A List of Commenters and Short Names

<u>Abbreviation</u>	<u>Commenter</u>
AARP	American Association of Retired Persons
Academic Commenters	Michael C. Caramanis, Geoffrey Parker, and Richard D. Tabors
Alcoa	Alcoa Inc. and Alcoa Power Generating Inc.
Allegheny Companies	Trans-Allegheny Interstate Line Company and Allegheny Power
American Transmission	American Transmission Company LLC
APPA	American Public Power Association
APS	Arizona Public Service Company
AT&T	AT&T, Inc.
AWEA	American Wind Energy Association
B-D Research	Bochman-Danahy Research
Black Hills Corp.	Black Hills Power, Black Hills/Colorado Electric Utility Company, LP d/b/a Black Hills Energy, and Cheyenne Light, Fuel and Power Company
BP	BP Energy Company
CAISO	California Independent System Operator Corporation
California Commission	Public Service Commission of California
CenterPoint	CenterPoint Energy Houston Electric, LLC
Chamber	U.S. Chamber of Commerce
Citizens Coalition	The Empowerment Center of Greater Cleveland, the Neighborhood Environmental Coalition, Consumers for Fair Utility Rates, and Cleveland Neighborhood Housing
Comverge	Comverge, Inc.
CPower	CPower, Inc.
CURRENT	CURRENT Group, LLC
DRSG Coalition	Demand Response and Smart Grid Coalition
Duke	Duke Energy Corporation
EEl	Edison Electric Institute
ELCON	Electricity Consumers Resource Council
EPSA	Electric Power Supply Association
E.ON	E.ON U.S. LLC

FirstEnergy	FirstEnergy Service Company on behalf of its affiliates American Transmission Systems, Incorporated, the Cleveland Electric Illuminating Company, Jersey Central Power and Light Company, Metropolitan Edison Company, Ohio Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and the Toledo Edison Company
GridSolar	GridSolar, LLC
GridWise Alliance GWAC	GridWise Alliance GridWise Architecture Council
Ice Energy	Ice Energy, Inc.
Illinois Commission	Illinois Commerce Commission
Indianapolis P&L	Indianapolis Power & Light Company
ISO-NE	ISO New England Inc.
ITC Companies	International Transmission Company d/b/a ITC <i>Transmission</i> , Michigan Electric Transmission Company, LLC, and ITC Midwest LLC
James E. Miller	James E. Miller
Kansas Commission	Kansas Corporation Commission
Maryland Commission	Public Service Commission of Maryland (supplemental comments only)
Maryland Counsel	Maryland Office of People's Counsel
Massachusetts Attorney General	Massachusetts Office of Attorney General
Michigan Commission	Michigan Public Service Commission
Midwest ISO	Midwest Independent Transmission System Operator, Inc.
Midwest ISO Transmission Owners	Midwest ISO Transmission Owners
NARUC	National Association of Regulatory Utility Commissioners
National Grid	National Grid USA
Natural Gas Commenters	Natural Gas Supply Association, Interstate Natural Gas Association of America, and Independent Petroleum Association of America

NEM and Intelligent Energy	National Energy Marketers Association and Intelligent Energy
NEMA	National Electrical Manufacturers Association
NERC	North American Electric Reliability Corporation
New York Transmission Owners	Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York Power Authority, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation (supplemental comments only)
North Carolina Agencies	North Carolina Public Utilities Commission and Public Staff-NC Utilities Commission
NRECA	National Rural Electric Cooperative Association
NRG Companies	NRG Energy, Inc. and Reliant Energy Retail Services, LLC
NYISO	New York Independent System Operator
Ohio Commission	Public Utilities Commission of Ohio
Ohio Counsel	Office of the Ohio Consumers' Counsel
Ohio Partners	Citizen Power, Cleveland Housing Network, Edgemont Neighborhood Coalition of Dayton, the Empowerment Center of Greater Cleveland, the Energy Project, the National Consumer Law Center, the Neighborhood Environmental Coalition, and Ohio Partners for Affordable Energy
Open Secure Systems	Open Secure Energy Control Systems, LLC
PG&E	Pacific Gas and Electric Company
PNM	Public Service Company of New Mexico
PSEG Companies	PSEG Energy Resources & Trade LLC, Public Service Electric and Gas Company, PSEG Power LLC, PSEG Global LLC
Public Interest Organizations	Project for Sustainable FERC Energy Policy, Conservation Law Foundation, Natural Resources Defense Council, The Commons, Union of Concerned Scientists, and Western Grid Group
SDG&E	San Diego Gas & Electric Company
Silver Spring Networks	Silver Spring Networks
Southern	Southern Company Services, Inc.

Springfield	Springfield Utility Board
TANC	Transmission Agency of Northern California
TAPS	Transmission Access Policy Study Group (supplemental comments only)
TVA	Tennessee Valley Authority
Valley Group	The Valley Group
Wal-Mart	Wal-Mart Stores, Inc.
Xcel	Xcel Energy Services Inc.