

**BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Smart Grid Policy

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Docket No. PL09-4-000

**COMMENTS OF
EDISON ELECTRIC INSTITUTE**

The Edison Electric Institute, on behalf of its member companies, hereby submits these comments in support of the Proposed Policy Statement and Action Plan (“Proposed Policy Statement”) issued in the above-captioned docket on March 19, 2009,¹ in which the Federal Energy Regulatory Commission (“FERC” or “Commission”) proposes to provide guidance to inform the development of “a smarter grid for the Nation’s electric transmission system,” focusing on the development of standards to achieve interoperability of smart grid devices and systems as well as to establish a interim rate policy for the period until the Commission adopts these standards.

EEI is the association of the nation’s shareholder-owned electric utilities and affiliates and associates world-wide; most of which are transmission providers subject to the Commission’s jurisdiction. EEI’s United States member companies serve almost 95 percent of the ultimate customers in the shareholder owned segment of the industry and nearly 70 percent of all electric utility ultimate customers in the nation. In addition, most EEI members directly, through affiliate power producers, or both, own electric generation facilities that provide electricity to wholesale markets subject to the Commission’s jurisdiction.

¹ *Smart Grid Policy*, Proposed Policy Statement and Action Plan, 126 FERC ¶ 61,253 (2009) (“Proposed Policy Statement”).

EXECUTIVE SUMMARY

It would be beneficial for the Commission to set forth its expectations for interoperability standards in advance of conducting a rulemaking to consider adopting such standards. The Commission should provide guidance to inform the timely development of key standards to achieve interoperability of smart grid devices and systems and how smart grid will interact with the Commission's existing approved Reliability Standards, including cyber security standards ("CIP Reliability Standards"). The Commission should exercise its authorities pursuant to the Federal Power Act ("FPA") and the Energy Independence and Security Act of 2007 ("EISA")² to be in harmony with the role that Congress has accorded to the National Institute of Standards ("NIST") in coordinating the development of interoperability standards and with individual states. The Commission should support the NIST approach to the coordination process for the development of interoperability standards because it appropriately balances the need for expedition of these standards with the necessity of thorough industry vetting and consensus on such standards in order to avoid unintended reliability, economic, and security consequences..

The Commission should also establish an interim rate policy that allows electric utilities to seek timely cost recovery for smart grid investments before the Commission adopts interoperability standards. With certain clarifications to the proposed interim rate policy, the Commission can facilitate implementation of appropriate Bulk Power System ("BPS") smart grid projects by providing rate incentives and guidance on cost recovery. Providing clear guidance on the types of smart grid costs that would be recoverable in rates and on the procedures for seeking rate recovery could greatly facilitate the development of smart grid technologies.

² Pub. L. No. 110-140, 121 Stat. 1492 (2007).

BACKGROUND

EEI members are uniquely positioned to promote advanced technologies due to their broad geographic reach, direct interaction with consumers across the country and unique experience with BPS optimization, advancements in energy efficiency, and support for integrating renewable energy resources. As system operators, electric utilities utilize advanced technologies to reduce system outages by anticipating system challenges and taking steps to resolve them before they create reliability problems. As critical infrastructure owners and operators, electric utilities are uniquely situated to support the highest level of cyber security.

Before advanced technologies were deemed necessary to promote a smart grid, the electric industry, in the natural course of its business, has been in the process of incorporating advanced technologies to ensure grid reliability and cyber security. Across the nation, electric utilities have engaged in state-approved pilot or demonstration programs, or in some cases widespread development of advanced metering systems. For example, Pepco Holdings, Inc. is developing a project involving the widespread deployment of advanced sensors and controls and the high-speed communications and information technology infrastructure needed to fully use the additional data and control options to improve its transmission system's reliability and efficiency. National Grid recently submitted a proposal to the New York Public Service Commission and Massachusetts Department of Public Utilities to implement smart grid demonstration projects to serve 120,000 customers. FPL Group is launching a smart grid deployment initiative in the city of Miami, Florida that will connect one million customers to the smart grid over the next two years. Xcel Energy is in the process of development and data gathering related to its comprehensive smart grid pilot project in the city of Boulder, Colorado that includes smart meters, in-home programmable control devices, smart substations and

integration of distributed generation. Consolidated Edison Co. of New York and Orange & Rockland Utilities are working on a number of smart grid projects that would seek to leverage smart grid meter functionality with grid optimization. While initial efforts to use smart grid technologies are still being implemented and analyzed, these types of programs have generally varied with respect to the use of differing technologies, communications protocols and rate design.

Recognizing that these developments around the nation impact state and federal regulators, a joint effort between the Commission and the National Association of Regulatory Utility Commissioners (“NARUC”) called the “Smart Grid Collaborative” was established. In this effort, members of the Smart Grid Collaborative have, among other things, explored a number of issues related to development of a comprehensive smart grid system, including the issue of interoperability, the types of technologies and communications protocols used in smart grid applications, the sequence and timing of smart grid deployments, and the type of rate structures that accompanied these types of projects. While these efforts have been beneficial, pursuant to § 1305(a) of EISA, Congress recognized that the development of an interoperability framework can accelerate the deployment of smart grid technologies and gave NIST the primary responsibility for coordinating the development of interoperability standards. However, achieving consensus among the many diverse entities involved in developing the smart grid presents challenges, and a sense of urgency for the development of standards for and deployment of smart grid technologies has been expressed within industry and government.

DISCUSSION

I. The Commission's Policy Statement should be in harmony with NIST's interoperability standards development coordination process.

The development and implementation of interoperability standards requires the efforts of industry, the states, and other federal agencies in addition to the Commission. EEI, therefore, supports the Commission's intention to use its authority in coordination and cooperation with these entities to help achieve interoperability in a timely manner. Proposed Policy Statement at P 1. The Commission should issue a policy statement and action plan ("Policy Statement") to provide guidance to help prioritize the development of key interoperability standards and provide guidance to the electric industry regarding the need for cyber security for BPS smart grid projects. *Id.* In the Proposed Policy Statement, the Commission has appropriately emphasized the need for the development of interoperability standards for inter-system communication, system security, wide-area situational awareness, demand response, electric storage, and electric transportation. *Id.* at P 2.

While EEI supports the Commission providing guidance on interoperability standards, the Commission should take care to exercise its authorities in harmony with the role of NIST in coordinating the development of interoperability standards, as set forth in § 1305(a) of EISA. Thus, the Commission should avoid mandating prescriptive solutions and should instead clearly articulate the problems or concerns it has identified for resolution in the NIST stakeholder process. In this regard, the Proposed Policy Statement adequately explains the problem presented by the fact that a smarter grid device would permit two-way communication between the electric system and a much larger number of devices located outside of controlled utility environments. Hence, it is appropriate that the Commission proposes to advise NIST to undertake the necessary steps to assure that each standard and protocol developed as part of

NIST's interoperability framework "is consistent with the overarching cyber security and reliability mandates of the EISA as well as existing reliability standards approved by the Commission pursuant to § 215 of the FPA." Proposed Policy Statement at P 14. This advice provides the necessary guidance that consistency with Commission-approved cyber security and reliability standards is a precondition to the Commission's adoption of interoperability standards for BPS smart grid devices while at the same time appropriately identifying that the interoperability standards development process is to be conducted by NIST in accordance with EISA § 1305. *Id.* EEI also supports the Commission's proposal to advise NIST to take the necessary steps to assure that its process for the development of any interoperability standards and protocols leaves no gaps in cyber or physical security unfilled for similar reasons. See Proposed Policy Statement at P 15.

EEI further suggests that the Commission should use clear definitions in its Policy Statement. It would be helpful, not only to NIST but to the electric industry as a whole, for the Commission to distinguish between the various standards in its Policy Statement. For example, the Commission should not blur the distinction between BPS Reliability Standards, including CIP Reliability Standards, and interoperability standards that will be developed for smart grid. Additionally, it is important for the Commission to make clear that that its jurisdiction relates to its enforcement oversight of BPS Reliability Standards developed by the North American Electric Reliability Council ("NERC") and adopted by the Commission pursuant to § 215 of the FPA, which does not include local distribution facilities that are regulated by the states. Indeed, Commissioner Kelly acknowledged this jurisdictional dichotomy when she stated recently before Congress that "FERC's authority under the FPA excludes local distribution facilities unless

specifically provided”³ This clarity is important because EEI envisions that a great proportion of investments made by FERC-jurisdictional utilities will be in facilities, equipment and technology subject to state jurisdiction.

The electric industry is also very concerned about the planning and execution of cyber security hardware and software applications for the electric industry. At the outset, EEI encourages the Commission to recognize smart grid technologies may present cyber security issues that should be addressed when the smart grid technology is first developed or manufactured rather than through “add-on” requirements for regulated utilities that apply at a later date and after the technology is installed for use. Smart grid products should undergo thorough interoperability and cyber security testing and certification at all levels prior to installation and use. The Commission should support the development of an industry certification program for smart grid products that is accredited by NIST. Such a program would ensure appropriate cyber security and interoperability testing is performed at all levels. Certification of vendor products for compliance with cyber security and interoperability standards should be done by independent firms that have been accredited by NIST.

A. The Commission should support NIST’s role as the coordinator for the interoperability standards development process.

EEI understands and appreciates the Commission’s sense of urgency for having mandatory and enforceable interoperability standards, but also believes that the need for expediency must be tempered by the necessity of industry technical experts conducting sufficient technical analysis to develop a consensus on these standards to warrant the Commission undertaking a rulemaking to adopt them. Undoubtedly, the imperative to develop smart grid

³ See Testimony of Commissioner Sudeen G. Kelly before the Committee on Energy and Natural Resources, United States Senate, at 12 (March 3, 2009) (“Commissioner Kelly Testimony”).

technologies is rapidly increasing. However, while a properly coordinated deployment of smart grid technologies that conform to appropriate interoperability standards that reflect a technical consensus will likely provide many positive benefits to the nation, care must be taken to maintain and enhance grid reliability and security at the same time. Well designed interoperability standards and protocols are necessary to achieve that goal and fulfill the imperative. Hence, the recently announced NIST Interim Roadmap Development Project sets forth the following objectives:

- Develop an Interim Roadmap that describes the high-level Smart Grid architecture, principles and interface design.
- Describe the current status, issues, and priorities for interoperability standards development and harmonization including an action plan that addresses these issues.
- Rapidly build consensus for the Interim Roadmap among the various Smart Grid stakeholders.

See attached NIST Interim Roadmap Project, Domain Expert Working Group (DEWG) Webcast (April 17, 2009). Towards these objectives, NIST recently concluded a two-day Smart Grid Interoperability Standards Interim Roadmap Workshop, in which fifteen standards were identified for possible inclusion in the initial round of standards.⁴ NIST has also recently provided a schedule of milestones that envisions the Interim Roadmap to be completed by early summer of 2009, and a report issued by the end of summer 2009 that identifies responsible parties for standards development and harmonization with a summary of unresolved issues. Accordingly, the Commission should find that NIST's Interim Roadmap Development Project appropriately balances these concerns.

⁴ A second workshop is scheduled to be held May 19-20, 2009.

At the same time, while achieving consensus may be difficult to attain in a short time frame, it is also important for NIST to establish a completion date so that sufficient resources are devoted to the project. EEI notes that NIST is already required to coordinate and provide reports to the Department of Energy through the Gridwise Architecture Council on the development of the NIST interoperability framework. See EISA § 1305. Thus, it is reasonable for the Commission to propose that NIST, in its role as a coordinator of the interoperability standards development process, should also consider voluntarily providing the Commission with a non-binding schedule and an estimated completion date within 30 days of the Policy Statement's effective date. The Commission should also assign its staff to monitor the NIST process so that it will be aware of any issues that may cause process delays. Such an approach harmonizes the Commission's approval authority with NIST's coordination role.

Similarly, if negotiations on certain interoperability standards reach an impasse, then NIST is best positioned to provide such guidance given its role as the coordinator of the interoperability standards development process. Proposed Policy Statement at P 10. Commissioner Kelly recognized in recent testimony before Congress that "NIST is used to serving as a neutral mediator to build consensus towards standards."⁵ In this role, NIST can leverage the input of industry experts to provide this type of guidance. Creating a FERC process in addition to the NIST process may have the unintended consequence of resulting in unnecessary delays in reaching a consensus among stakeholders. For example, can the Commission provide guidance without initiating a formal proceeding requiring notice and comments? EEI believes it would be most helpful for FERC staff to provide informal guidance and technical support within the NIST process.

⁵ See Commissioner Kelly Testimony at 9.

The Commission proposes to conduct a rulemaking to adopt interoperability standards and protocols once it is “satisfied” that NIST’s work has resulted in “sufficient consensus” on interoperability standards. Proposed Policy Statement at P 8. The Commission also states that it expects that NIST will recommend to the Commission, in accordance with § 1305(a) of EISA, interoperability standards that have been developed in coordination with standards development organizations and industry participants. See Proposed Policy Statement at P 9. EEI supports this approach and suggests that, consistent with EISA § 1305(a)(2),⁶ the Commission should make clear that it also expects that the NIST process will provide for reasonable notice and opportunity for public participation and comment. Finally, with respect to the Commission’s request for comment on what factors it should consider in determining when NIST’s work has led to “sufficient consensus” on interoperability standards to warrant instituting a rulemaking, the Commission should give great weight to NIST’s recommendation to the Commission for approval of interoperability standards that are developed with American National Standards Institute (“ANSI) accreditation or that uses processes and procedures with features required by ANSI-certified standard develop processes.⁷ The Commission will need to balance its sense of urgency regarding the immediate issues against the time and resources required to provide the necessary openness, due process, balance of interests, and transparency in the standards development process.

⁶ This section requires NIST to solicit input and cooperation from private entities.

⁷ The Commission considered a broad range of standards development issues during its certification of the Electric Reliability Organization pursuant to FPA § 215 that could be useful in the immediate context, including ANSI accreditation. See *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, 111 FERC ¶ 61,104 at 258-263, 268-270, and 290-297 (February 3, 2006).

II. The Commission should provide guidance to help prioritize the development of standards for cyber security and reliability, inter-system communication and coordination, and four key grid functionalities.

The Commission may help to remove uncertainty by clearly stating its view that the first level of work that should be completed by the interoperability standard setting process should be cyber security (and physical security to protect equipment that can give access to bulk-power operations) and interoperability. This would provide a secure and common semantic framework and software models that will permit effective communication and coordination at the boundaries of utility systems that interfaces with customer equipment and other systems. Proposed Policy Statement at PP 26-27. The Commission is correct to identify these priorities for further development by the NIST process, but should also recognize the cost and time needed to evolve from standards governing existing infrastructure in place and being deployed today as well as the advanced standards necessary to ensure a secure and interoperable smart grid. See Proposed Policy Statement at P 26.

EEI supports the Commission's proposal to prioritize the development of standards for "two cross-cutting issues and four key grid functionalities," as set forth in the Proposed Policy Statement. See Proposed Policy Statement at P 27. The Commission should make clear its view that these issues and key functionalities should be a part of the first level of work to be accomplished in the interoperability standard setting process. EEI particularly appreciates the Commission's recognition that it is necessary to seek cooperation from the states and other parties on the optimal approach to develop standards in areas traditionally outside of the purview of federal regulation (e.g., specification for customer meters, electricity storage on customer premises, etc.). Proposed Policy Statement at P 39. EEI also strongly supports the Commission's proposal to adopt "initial overarching principles" regarding the security measures

that are necessary to comply with the need for foundational security controls (e.g. electronic access control, network isolation, malware products, etc.) and to address the Commission's bulk-power concerns. See Proposed Policy Statement at P 29. A Registered Entity subject to Commission-approved Reliability Standards must certainly ensure that it maintains compliance with those standards during and after the installation of smart grid technologies.

EEI also strongly agrees with the Commission's assessment in the Proposed Policy Statement that smart grid technologies should address certain considerations to the extent they could affect BPS reliability. Proposed Policy Statement at P 30. While the Commission should make clear that smart grid technologies should address the "integrity of data communicated," this term should not be defined as "whether the data is correct." Instead, this term should be defined as "validating that the data has not been changed or modified in transit." *Id.* Smart Grid technologies also should address "the authentication of communications (whether the communications is between the intended Smart Grid device and an authorized device or person)," but the Commission should acknowledge that there may be cases where a communication will not be required to be authenticated. *Id.* EEI also agrees that smart grid technologies should address the physical protection of critical smart grid devices and the potential impact of unauthorized use of critical BPS smart grid devices. Proposed Policy Statement at P 30. However, this consideration should be limited to "critical" smart grid devices since a Registered Entity cannot protect all meters, access points and other devices that are physically accessible to the general public. Any smart grid system must be designed with the assumption that most devices will be physically compromised and even reverse engineered. A Registered Entity can protect the key components of the system that provide the critical security functionality (e.g. the digital certificate infrastructure and back office systems). Similar to the

CIP Reliability Standards, electric utilities need to evaluate and identify critical system components and provide a much higher level of cyber and physical security for these types of components.

Given that much of the anticipated smart grid installations will be installed at the local distribution system level, the Commission should be clear that mere “installation of Smart Grid technologies” without respect to whether such equipment or systems are installed at the BPS level does not create a compliance obligation for a Registered Entity subject to Commission-approved reliability standards. Furthermore, the Commission should avoid generically referring to “Smart Grid” installations without respect to whether these installations are made at the BPS or local distribution system since specific standards may be different for equipment located on the local distribution system (e.g. meters).⁸

Finally, EEI believes that NIST may consider engaging the resources of other organizations in the development of uses cases or other standards. Proposed Policy Statement at P 43. For example, NIST may consider that the Gridwise Architecture Council, Electric Power Research Institute (“EPRI”), Intelligrid, and various electric utilities have all already published uses cases.

III. The Commission should clarify its proposed interim rate policy.

EEI and its members are encouraged by the interim rate policy included in the Proposed Policy Statement. The proposed interim rate policy provides a rate recovery mechanism for smart grid investments while the framework for interoperability and standards is developed. The proposed interim rate policy provisions to recover costs associated with smart grid investments

⁸ For example, physical security provisions of CIP-006 may be impracticable for most assets located outside of a controlled utility environment.

and deployment of smart grid technologies could facilitate EEI members continuing to invest in advanced technologies that promote the smart grid. Additionally, EEI members support the Commission's efforts to incorporate recovery provisions for stranded costs associated with legacy systems that are replaced by smart grid equipment in their rates. The proposed interim rate policy also represents a meaningful benefit to investor-owned utilities with stated rates because it provides the opportunity to make a single issue rate filing for smart grid investments.

A. The Commission should address how smart grid costs will be incorporated in formula rates.

EEI supports the Commission's proposal to provide an interim rate policy, but certain clarifications are necessary to eliminate concerns identified for electric utilities. EEI supports the proposal for the Commission to establish a single issue rate recovery mechanism, but the Commission should make clear how this would impact investor-owned utilities seeking rate recovery for smart grid investments in annual updates to their Commission-approved formula rates. It is not clear from the Proposed Policy Statement whether the Commission intends to change the formula rate or protocols by creating an additional line item or line items that include all smart grid costs or whether these costs will be incorporated within existing categories that fit the smart grid investment or costs. Such a change is not necessary and would result in greater uncertainty, thus, the Commission should not require modification of existing formula rates and protocols.

B. The Commission should clarify the jurisdictional and non-jurisdictional components of smart grid equipment that fall under this proposed interim rate policy.

The Commission should clarify the jurisdictional and non-jurisdictional components of smart grid equipment for rate recovery purposes under the FPA. It is well settled that the Commission has jurisdiction over transmission facilities while the states have jurisdiction over

local distribution facilities. However, specific smart grid equipment may be installed on either or both transmission and distribution facilities.

C. The Commission should provide clarification between the smart grid devices that qualify for advanced technology incentives under Order No. 679 and those that qualify for smart grid rate treatment under the interim rate policy.

The Commission's Order No. 679 provides rate incentives for advanced technologies including energy storage devices, controllable load, enhanced power device monitoring, direct system state sensors, as well as real time monitoring and analytic software. Therefore, the Commission should clarify: (1) whether it will differentiate between devices that qualify for advanced technology rate incentives under Order No. 679 and those that qualify for the proposed smart grid interim rate policy treatment; or (2) whether the same technology may qualify for either rate incentive. Additionally, the Commission should explain whether an applicant may request smart grid rate recovery incentive rate treatment under Order No. 679 and treatment as a single issue rate filing as provided by the Proposed Policy Statement.

A related issue that the Commission should address is whether a utility filing for rate incentive treatment under Order No. 679 for smart grid investments is required to fulfill the same criteria presented in this draft policy statement. Also, the Commission should explain if a utility is denied incentive rate treatment under Order No. 679 for smart grid investments, whether the Commission will allow it to file for rate recovery under the smart grid interim rate policy presented in the Proposed Policy Statement?

D. The Commission should provide waiver of financial data requirements for single issue rate filings.

Given the specificity of the criteria required by the Proposed Policy Statement for obtaining cost recovery for smart grid investments, the Commission should consider and identify appropriate waivers of its filing requirements for rate filings seeking recovery of smart grid

investments and costs. For such costs, EEI believes that filing of Period I data may be adequate for determining whether rates are just and reasonable. EEI seeks guidance from the Commission on requests for waiver of Period I and Period II filings requirements.

CONCLUSION

WHEREFORE, EEI respectfully requests that the Commission consider these comments and ensure that any future Commission action ordered as a result of this proceeding is consistent with them.

Respectfully submitted

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