



## Energy and Public Utilities Update – Smart Grid Policy Statement

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On July 16, 2009, the Federal Energy Regulatory Commission (FERC or Commission) issued a final policy statement providing guidance on the development of a smart grid for the nation's electric transmission system (Policy Statement or Smart Grid Policy Statement; see Docket No. PL09-4-000). Specifically, the Smart Grid Policy Statement sets priorities regarding the key standards to be developed in order to achieve interoperability and functionality of smart grid systems and devices. In addition, the Commission adopts an Interim Rate Policy applicable to public utilities investing in smart grid technology in the period prior to adoption of smart grid interoperability standards.

## Background

Section 1305(a) of the Energy Independence and Security Act of 2007 (EISA) sets forth a Smart Grid Interoperability Framework that gives the National Institute of Standards and Technology (NIST) primary responsibility to coordinate the development of an interoperability framework that "includes protocols and model standards for information management to achieve interoperability of smart grid devices and systems." EISA § 1305(a). The Director of the NIST is to seek input and cooperation from the Commission and once the Commission is satisfied that NIST's work has led to "sufficient consensus" on interoperability standards, the 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." See EISA § 1305(d).

On March 19, 2009 the Commission issued a Proposed Smart Grid Policy Statement and Action Plan. The final Smart Grid Policy Statement generally adopts the proposals contained in the Proposed Policy Statement and provides for additional guidance on standards that will help to realize a smart grid.

## Jurisdictional Concerns

Commenters noted federal and state jurisdictional issues raised by the Proposed Smart Grid Policy Statement. The jurisdictional issues involve both the adoption and applicability of the standards

themselves and whether any deployed technology is subject to state or federal rate authority.

In response, the Commission notes that EISA §§ 1301 and 1305(d) direct 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." Policy Statement at P 22. The Commission states that EISA does not exclude any segment of the interoperability framework from the scope of standards that are to be promulgated. Accordingly, the Commission finds that EISA grants it 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." *Id.*

However, the Commission also noted the various limits on its finding. For example, the Commission observed that: (i) EISA does not make any standards mandatory and does not give the Commission authority to make or enforce any such standards; (ii) the authority to adopt standards under EISA does not change the scope of the Commission's ratemaking or reliability jurisdiction; (iii) the EISA mandate to adopt interoperability standards does not afford the Commission new economic regulatory authority over local distribution facilities, and (iv) the Commission does not interpret EISA to allow it to direct states to implement any particular retail customer policies or programs. Policy Statement at PP 23, 25.

## Development of the Key Interoperability Standards

In the Proposed Policy Statement, the key priorities for the development of standards were: (i) system security; (ii) inter-system communication, (iii) wide-area situational awareness, (iv) demand response, (v) electric storage, and (vi) electric transportation. Policy Statement at P 29.

## System Security

The Commission finds that the development of cyber security standards is a key priority in protecting the electricity grid. Policy Statement at P 40. In order to adopt a proposed smart grid standard, the Commission will require a demonstration that a proposed standard: (1) directly incorporates cyber security protection provisions, or (2) incorporates cyber security protection provisions from other smart grid standards or electric Reliability Standards. The incorporation of other cyber security provisions can be those that are submitted to the Commission concurrently with the smart grid standard; those that already are pending before the Commission, or those that previously have been adopted or approved by the Commission under EISA or section 215 of the FPA. *Id.* at P 41.

The Commission indicates that it does not intend to preempt the development of an interoperable smart grid framework with the prioritization of cyber security and physical security; rather, the Commission emphasizes that the efforts are complimentary. Given its reliability and security oversight mandates under EISA and FPA section 215, the Commission is attempting to “promote and accelerate development and implementation of cyber security 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.” Policy Statement at P 42. The Commission emphasized that interoperability standards must support, and not conflict with, the efforts to improve the cyber security of electric power systems.

Regarding collaboration between NIST and NERC on developing smart grid standards, the Commission expects that NERC will monitor the compatibility of the smart grid standards with Commission-approved Critical Infrastructure Protection (CIP) reliability standards and help identify any gaps or inconsistencies that are left unaddressed. Policy Statement at P 43. The Commission stated that deploying smart grid technologies does not, in and of itself, result in the need for compliance with reliability standards (noting that 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). *Id.* at P 45.

## Communication and Coordination Across Inter-System Interfaces

The Commission described the need for standards for inter-system interfaces as the need for “a common semantic framework and software models [to enable] effective communication and coordination across inter-system interfaces.” Policy Statement at P 46 (quoting Proposed Policy Statement at P 32). The Commission found that the development of standards for communicating and coordinating across inter-system interfaces is a key priority. Policy Statement at P 51.

The Commission agreed that the smart grid essentially is a “system of systems” and that standardized communications across the interfaces of these systems is a critical enabler of smart grid functionality and interoperability and supports “virtually all of the smart grid goals”. *Id.* The Commission also agreed that RTOs and ISOs should take a prominent role in defining system interfaces and encouraged RTOs, ISOs, and all other FERC-jurisdictional utilities to engage in NIST’s standards development process. Policy Statement at P 53.

## Wide-Area Situational Awareness

In the Proposed Policy Statement, the Commission described wide-area situational awareness as the visual display of interconnection-wide system conditions in near real-time at the reliability coordinator level and above. In the final Policy Statement, the Commission affirmed its proposed policy and found that wide-area situational awareness is a key priority for the standards development process. Policy Statement at P 61.

The Commission explained that wide-area situational awareness is an 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. *Id.* In addition, increased situational awareness can allow

for additional system automation and quicker reaction times to various reliability events. *Id.*

In response to a request for clarification that wide-area situational awareness should be the responsibility of all NERC-defined functional reliability entities (*e.g.*, balancing authorities and transmission operators) and not just limited to the reliability coordinator level and above, the Commission stated that it did not intend to limit responsibility for wide-area situation awareness to only reliability coordinators. *Id.*

### Demand Response

The Commission found the development of standards for demand response to be a key priority. Policy Statement at P 74. Smart grid technologies: (i) have considerable potential to promote demand response, which can reduce wholesale prices and wholesale price volatility and reduce potential generator market power; and (ii) can enhance the application of demand response to accommodate the integration of variable generation. *Id.*

The Commission reaffirmed that emphasis should be placed on the further development of “use cases” and scenarios for demand response (particularly with regard to dispatchable demand response and various forms of dynamic pricing). *Id.* at P 75. The Commission stated that the effort to develop dispatchable demand response interoperability standards “should support the full range of customer types from large industrial customers through commercial and smaller residential customers.” *Id.* The Commission also expects 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.” *Id.*

Dynamic pricing. With regard to dynamic pricing, the Commission said it is important to develop standards that support dynamic pricing because dynamic pricing offers an efficient means and incentive for large numbers of smaller customers to take appropriate demand response actions. The Commission highlighted, however, that its intent is not to require the use of dynamic pricing in retail rates. *Id.*

Advanced Metering Systems. With regard to the development of standards for advanced metering systems, the Commission noted that national interoperability standards for meters may be appropriate. The Commission stated that such national standards “should enable the use of direct load control, dynamic pricing, current tariff pricing or other program options that are approved by retail regulators.” *Id.* at P 76. However, the Commission also stressed 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.” *Id.* Moreover, the Commission recognized that state and local regulators have jurisdiction over retail rates and that recovery of retail jurisdictional costs will continue to be determined by state and local regulators. *Id.*

### Electric Storage

The Commission found that electric storage is a key functionality of the smart grid. See Policy Statement at PP 81, 82. The Commission recognized concerns about premature development of standards given that electric storage technology continues to evolve. However, the Commission noted that NIST’s interoperability standards development process assembled a limited number of storage use cases. The Commission concluded that “[i]nitial identification of use cases should not impede future storage innovations.” *Id.*

### Electric Vehicles

The Commission adopted its proposed policy that electric transportation is a key functionality of the smart grid. Policy Statement at P 90. The Commission stated that standards relating to electric transportation should be treated as a key priority by the NIST and the industry in the process of developing interoperability standards. *Id.* The Commission agreed with NERC that the reliability of the bulk-power system could be affected by the high levels of penetration by electric vehicles but noted that the ability of distribution utilities to facilitate off-peak charging may be able to mitigate such reliability concerns. *Id.*

While noting that the market likely will play the principal role in determining whether and when electric vehicle load will become significant for utility systems, the Commission urged the early development of technical requirements that can permit distribution utilities to facilitate electric vehicle charging during off-peak load periods. *Id.* at P 90. The Commission stated that the development of this technical capability should provide state commissions with an additional tool to deal with any electric vehicle-related load growth that they may see in the future. *Id.*

### Interim Rate Policy

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. Policy Statement at P 96. However, for the period until interoperability standards are adopted, the Commission proposed an "Interim Rate Policy" that would accept public utility rate filings under FPA § 205 to recover the costs of smart grid deployments provided the filings contained certain showings. *Id.* The Commission also stated that such smart grid investments would be "used and useful" for purposes of rate recovery if an applicant made the appropriate showings. *Id.*

In the final Policy Statement, the Commission adopted the Interim Rate Policy that allows recovery of jurisdictional smart grid costs if certain showings are made. Policy Statement at P 103. To receive the benefit of the Interim Rate Policy a public utility must file either a petition for declaratory order or an FPA § 205 filing demonstrating that it has made the relevant showings (discussed below).

*The term of the Interim Rate Policy.* The Interim Rate Policy will be effective until relevant interoperability standards have been adopted through Commission rulemakings, as provided for under EISA section 1305(d). *Id.*

### Demonstrations Required For Rate Approval

The Commission will require that an applicant make four demonstrations to recover smart grid costs. Policy Statement at P 122. First, an applicant must show that the smart grid facilities will advance the goals of EISA section 1301. *Id.* Second, an applicant must show that the reliability and cyber security of the bulk-power system will not be adversely affected by the deployment of the smart grid facilities. *Id.* Third, an applicant must show that it has minimized the possibility of stranded investment in smart grid equipment, given that such filings will predate adoption of interoperability standards. *Id.* Finally, because early smart grid deployments can provide valuable feedback for the interoperability standards development process, an applicant must agree to share information with the Department of Energy's Smart Grid Clearinghouse. *Id.*

*1. Advancing the goals of EISA § 1301.* In order to meet this criteria, 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, in EISA § 1301. The goals in EISA § 1301 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 cyber security; and deployment and integration of distributed resources and generation, including renewable resources, demand side resources and energy efficiency resources. Policy Statement at P 123.

*2. Demonstrating that the reliability and cyber security of the bulk-power system will not be adversely affected.* An applicant must describe how its deployment of smart grid equipment will maintain the reliability and cyber security of the bulk-power system, including compliance with Commission-approved Reliability Standards both during and after the installation and activation of smart grid technologies. Policy Statement at P 124. An applicant also must address: (i) the integrity of data communicated (whether the data is correct), (ii) the authentication of the communications (whether the communication is between the intended smart grid

device and an authorized device or person), (iii) the prevention of unauthorized modifications to smart grid devices and the logging of all modifications made, (iv) the physical protection of smart grid devices, and (v) the potential impact of unauthorized use of these smart grid devices on the bulk-power system. *Id.*

*3. Minimizing the possibility of stranded investment.* To make this demonstration, an applicant must show how it has relied to the greatest extent practical on existing, widely adopted and open interoperability standards. The applicant also must demonstrate that, where feasible, it relied on systems and firmware that can be securely upgraded in a quick and readily available manner. Policy Statement at P 125.

*4. Agreeing to share information with DOE's Smart Grid Clearinghouse.* To make this showing an applicant must agree to share the same information required by the Department of Energy (DOE) for its grant program with DOE's Smart Grid Clearinghouse.

#### Rate Incentives: Single Issue Ratemaking

As part of the Interim Rate Policy, the Commission decided to allow single issue rate treatment for the recovery of costs associated with smart grid investments. Policy Statement at P 124. Single issue rate treatment means that entities will be able to recover the cost of smart grid investments without having to open their entire rate base to Commission review.

#### Rate Incentives: Recovery of Stranded Costs

As part of the Interim Rate Policy, the Commission will allow single issue rate treatment of otherwise stranded costs for jurisdictional legacy systems that being replaced by jurisdictional smart grid equipment. Policy Statement at P 141. However, in order to seek recovery of stranded costs, a proposal must be supported by an equipment migration plan that minimizes the stranding of unamortized costs of legacy systems. *Id.*

#### Rate Incentives: Accelerated Depreciation and Recovery of Abandoned Plant Costs

The Commission decided to permit utilities to request accelerated depreciation and abandonment authority (*i.e.*, the authority to recover abandoned plant costs if a project is abandoned for reasons outside the control of the public utility) under its Interim Rate Policy under FPA § 205. Policy Statement at P 149.

Certain commenters had questioned the relationship between the incentives in the Interim Rate Policy and the incentives contained in Order No. 679. Other commenters proposed additional rate incentives. With regard to these comments, the Commission stated that, as with any section 205 filing or petition for declaratory order, it will make the rate determination based on the specific facts and circumstances presented, "including the relationship to other incentives, if any." *Id.*

#### Rate Recovery and Projects Receiving DOE Funding Grants

After the issuance of the Proposed Policy Statement on March 19, 2009, DOE announced two smart grid funding opportunities for up to fifty percent of the costs of certain smart grid projects. Policy Statement at P 150. In addition, DOE planned to require applicants to identify the source of non-DOE funds, along with some evidence as to the certainty of these funds. *Id.*

The Commission sought supplemental comments on the matter and certain commenters asked that the Commission not provide funding guarantees for that portion of any smart grid project not covered by the DOE grants. After considering all the supplemental comments, the Commission found no need for special procedures for rate recovery filings for smart grid projects that also receive DOE grant funding. Policy Statement at P 156.

## For Further Information

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