

**UNITED STATES OF AMERICA
BEFORE THE
DEPARTMENT OF ENERGY
OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY**

DE-FOA-0000058A	)	Notice of Intent:
	)	Smart Grid Investment
	)	Grant Program
	)	
DE-FOA-0000036	)	Draft Funding Opportunity
	)	Announcement – Smart
	)	Grid Demonstrations
	)	

**COMMENTS OF THE PUBLIC UTILITIES COMMISSION OF
OHIO
MAY 6, 2009**

The Public Utilities Commission of Ohio (Ohio or Ohio Commission) appreciates the opportunity to comment upon the Notice of Intent to issue a Funding Opportunity Announcement for Smart Grid Matching Grants (DE-FOA-0000058A) and upon the Draft Funding Opportunity Announcement for Smart Grid Demonstrations (DE-FOA-0000036). The Ohio Commission believes the incentives provided by these programs are a key component in an important Federal – State partnership to advance the creation of a more efficient, reliable, and resilient power system.

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OHIO'S INTEREST IN SMART GRID

The Ohio Commission has been and will continue to be active in supporting the demonstration and deployment of smart grid architecture. It is the policy of the State of Ohio to encourage Smart Grid implementation to modernize the grid and as a supporting infrastructure for demand response, environmentally sustainable technologies, and distributed generation. Ohio Rev. Code §4928.02 makes it state policy to:

(D) Encourage innovation and market access for cost-effective supply- and demand-side retail electric service including, but not limited to, **demand-side management, time-differentiated pricing, and implementation of advanced metering infrastructure; ...**

(J) Provide coherent, transparent means of giving appropriate incentives to technologies that can adapt successfully to potential environmental mandates; ...

(K) Encourage implementation of distributed generation [Emphasis added.]

Ohio's new electricity law, Amended Substitute Senate Bill 221 ("S.B. 221"), which became effective July 31, 2008, authorizes incentives for distribution modernization and rates supporting long-term energy delivery infrastructure

modernization plans.¹ The new law provides that an electric utility's security plan may include:

Provisions regarding ... **distribution infrastructure and modernization incentives** for the electric distribution utility. **The latter may include a long-term energy delivery infrastructure modernization plan for that utility....** [Emphasis added.]²

S.B. 221 also adopted energy efficiency and peak demand reductions that are among the most aggressive in the nation, requiring a more than 22% reduction in electric energy use by 2025, and a 7.5% reduction in peak demand by 2018.³

The Ohio Commission has, pursuant to Subtitle E, "Amendments to PURPA," Section 1252 of the Energy Policy Act of 2005, and pursuant to Section 1307, "State Consideration of Smart Grid," of the Energy Independence and Security Act (ESIA), considered the matters of Advanced Metering Infrastructure and Smart Grid. Over the last three years, the Ohio Commission has sponsored more than a dozen workshops with electric utilities and stakeholders to consider implementation of these concepts.⁴ Many of these workshops were webcast, and they engendered an extraordinary amount of stakeholder participation and interest because they were focused on the development of implementation plans and the cost effectiveness of such plans.

The Department of Energy's Modern Grid Initiative Team, sponsored by the National Energy Technology Laboratory, worked with the Ohio Commission's staff to plan these workshops and made presentations on smart grid and AMI as a smart grid application. The workshops included presentations by electric utilities, experts, vendors

¹ 127th Ohio General Assembly, Amended Substitute Senate Bill 221, Effective July 31, 2008.

² Ohio Rev. Code Ann. §4928.143.

³ Ohio Rev. Code Ann. §4928.66.

⁴ *In the Matter of the Commission's Response to Provisions of the Energy Policy Act of 2005, Regarding Net Metering, Smart Metering, and Demand Response, Cogeneration and Power Production Purchase and Sales Requirements, and Interconnection*, PUCO Case No. 05-1500-EL-COI, Entry (December 14, 2005) and *In the Matter of the Commission-Ordered Workshop Regarding Smart Metering Deployment*, PUCO Case No. 07-646-EL-UNC, Entry (June 27, 2007).

and consumers. Electric utilities submitted pro forma rollout plans for advanced metering and smart grid, and they submitted informal estimates of operational savings that could be derived from such rollouts to all customers.

These workshops laid the foundation for specific electric utility smart grid proposals to be considered as part of implementing Ohio's new electricity law. The Ohio Commission has approved smart grid plans by Duke Energy Ohio⁵ and the Ohio operating companies of American Electric Power Company (AEP)⁶ to execute rollouts of an open and secure communications infrastructure, advanced meters, and other smart grid applications. Rollouts are planned to proceed in phases over the next five and seven years, given a combination of ratepayer and potential federal funding. Currently pending before the Ohio Commission is a Stipulation and Recommendation addressing the Dayton Power and Light Company's plans for advanced metering infrastructure and smart grid deployment.⁷ Finally, the FirstEnergy Companies were directed by the Commission to work with the Ohio Commission's staff to complete, by June 1, 2009, a study of large-scale AMI / Smart Grid deployment options.⁸

⁵ *In the Matter of the Application of Duke Energy Ohio, Inc. for Approval of an Electric Security Plan; In the Matter of the Application of Duke Energy Ohio, Inc. for Approval to Amend Accounting Methods; In the Matter of the Application of Duke Energy Ohio, Inc. for Approval of a Certificate of Convenience and Public Necessity to Establish an Unavoidable Capacity Charge(s); In the Matter of the Application of Duke Energy Ohio, Inc. for Approval to Amend its Tariff*, PUCO Case Nos. 08-920-EL-SSO, 08-921-EL-AAM, 08-922-EL-UNC, 08-923-EL-ATA, Opinion and Order (December 17, 2008).

⁶ *In the Matter of the Application of Columbus Southern Power for Approval of an Electric Security Plan; an Amendment to its Corporate Separation Plan; and the Sale or Transfer of Certain Generating Assets; and In the Matter of the Application of Ohio Power Company for Approval of its Electric Security Plan; and an Amendment to its Corporate Separation Plan*, PUCO Case Nos. 08-917-EL-SSO and 08-918-EL-SSO, Opinion and Order (March 18, 2009).

⁷ *In the Matter of the Application of The Dayton Power and Light Company for Approval of Its Electric Security Plan; In the Matter of the Application of The Dayton Power and Light Company for Approval of Revised Tariffs; In the Matter of the Application of The Dayton Power and Light Company for Approval of Certain Accounting Authority Pursuant to Ohio Rev. Code Section 4905.13; and In the Matter of the Application of The Dayton Power and Light Company for Approval of Its Amended Corporate Separation Plan*, PUCO Case Nos. 08-1094-EL-SSO, 08-1095-EL-ATA, 08-1096-EL-AAM, and 08-1097-EL-UNC, Stipulation and Recommendation (February 24, 2009).

⁸ *In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Authority to Increase Rates for Distribution Service, Modify Certain*

IMPORTANCE OF FEDERAL FUNDING FOR SMART GRID DEMONSTRATIONS AND INVESTMENT GRANTS

Ohio is “shovel ready” for Smart Grid. Plans are in place and, for some electric utilities, have been given initial approval by the Commission. All of Ohio’s electric utilities have seriously vetted the design and scope of their plans, including technology and vendor choices. Duke Energy Ohio has commenced installation of communications systems and meters. AEP expects to begin deployment in the near future. Dayton Power and Light Company’s proposal for a rollout of communications infrastructure, advanced meters, and distribution automation is pending before the Ohio Commission. Additionally, the FirstEnergy operating companies have been directed to complete their study of options for developing an open system architecture, large-scale AMI deployment, and implementation of other cost-effective smart grid applications.

Mechanisms have been established for Duke Energy Ohio and for AEP to recover the ratepayer portion of funding for prudent smart grid investments as authorized by the Ohio Commission. However, we recognize that economic and reliability benefits associated with smart grid projects in Ohio, in part, could spill over to consumers in other states in the PJM and Midwest ISO energy markets. Other states also will have opportunities to benefit from our experience as an early adopter of smart grid systems.

The opportunity to seek American Recovery and Reinvestment Act (ARRA) funding has been considered in the Ohio Commission’s proceedings. For example, the Ohio Commission approved a stipulation that included a provision for the FirstEnergy Companies to pursue available federal recovery act funding:

The Companies will develop a proposal to pursue federal funds available under the Economic Recovery Act that may be available for smart grid investment. The Companies will

work with signatory parties to develop tariffs for customers that include critical peak, time-of-day and real-time pricing, and consideration of a load factor provision for Rate GSU and Rate GP. Recovery for smart grid investment shall be through an unavoidable rider.⁹

In the case of AEP, the Commission noted that, “recent federal legislation makes matching funds available to smart grid projects,” approved recovery of a portion of the costs and directed the Company “to make the necessary filing for federal matching funds under the American Recovery and Reinvestment Act of 2009 for the balance of the projected costs of gridSMART Phase I.”¹⁰

Federal matching funds will be critical to achieving both electric utility and broad stakeholder support for major Smart Grid initiatives and effectively supporting Ohio’s forward looking legislative policies and mandates. Further, it will enable Ohio electric utilities to share with affiliates and non-affiliates in other states the lessons learned from Smart Grid investments. Federal matching recognizes that in regional markets the economic and reliability benefits of smart grid deployments cannot be fully contained within the boundaries of any state or utility. Ohio regards development of a smart grid as integral to the state’s economic recovery and the availability of ARRA demonstration and investment grant funds as an important opportunity to reduce the immediate rate impacts of such investments during this difficult period for the state’s economy.

⁹ *In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Authority to Establish a Standard Service Offer Pursuant to Section 4928.143, Revised Code, in the Form of an Electric Security Plan; and In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Approval of Rider FUEL and Related Accounting Authority*, PUCO Case Nos. 08-935-EL-SSO, 09-21-EL-ATA, 09-22-EL-AEM, and 09-23-EL-AAM, Second Opinion and Order (March 25, 2009).

¹⁰ *In the Matter of the Application of Columbus Southern Power for Approval of an Electric Security Plan; an Amendment to its Corporate Separation Plan; and the Sale or Transfer of Certain Generating Assets; and In the Matter of the Application of Ohio Power Company for Approval of its Electric Security Plan; and an Amendment to its Corporate Separation Plan*, PUCO Case Nos. 08-917-EL-SSO and 08-918-EL-SSO, Opinion and Order at 38 (March 18, 2009).

FUNDING OPPORTUNITIES SHOULD ENSURE THAT SMART GRID OBJECTIVES ARE ADVANCED

ARRA smart grid demonstration and investment grant programs are an opportunity to leverage significant improvements in the power system. A smart grid represents a fundamental transformation that can provide consumers greater control over their electric bills, enable development of more efficient markets, integrate distributed and renewable energy resources, optimize the use of existing assets, enhance reliability and power quality, and create a more resilient power system. Achieving these objectives will provide a foundation for long-term economic growth. The Department should apply ARRA funds to provide a catalyst to substantially advance these objectives.

Electric utilities and equipment vendors will have an incentive to classify a broad range of plans as “smart grid” projects. Some applications may seek funding for incremental improvements and isolated applications of a digital technology that are not part of any integrated smart grid initiative. In some cases, these may represent projects that would have gone forward in a business as usual investment cycle.¹¹ Funding the maximum number of applications, including projects that may have “less technical merit than other applications,” could dilute the quality and impact of the projects funded. Ohio electric utilities are not alone in planning for a smart grid.¹² We do not believe it will be necessary or appropriate to compromise on technical merit when making funding decisions. We encourage the Department to fund well thought out, innovative demonstrations under DE-FOA-0000036, and larger scale, integrated deployments of

¹¹ The Energy Independence and Security Act of 2007 (EISA) in its Statement of Policy on Modernization of the Electricity Grid makes it Federal policy, in part, “to achieve ... identification and lowering of unreasonable or unnecessary barriers to adoption of smart grid technologies, practices, and services.” EISA Section 1301 (10). Congress’ intent in authorizing smart grid demonstration and grant programs was to lower barriers and change the trajectory of grid modernization.

¹² Forty U.S. electric utilities in 37 states and the District of Columbia are reported to have AMI or smart grid plans. *Smart Metering Projects Map* (April 3, 2009). See <http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=115519311058367534348.0000011362ac6d7d21187&ll=53.956086,14.677734&spn=23.864566,77.519531&z=4&om=1>

smart grid systems under DE-FOA-0000058, that substantially advance smart grid objectives.

THE INVESTMENT GRANT PROGRAM SHOULD PROVIDE SIGNIFICANT INCENTIVES FOR LARGE SCALE SMART GRID DEPLOYMENTS

Energy Independence and Security Act, Section 1306, matching grants were intended to encourage broad deployment of smart grid technology. The Administration set aggressive benchmarks for its recovery plan to effect a “transformation” to a smarter power grid, including that “upfront investments and reforms in modernizing our nation’s electricity grid will result in ... 40 million ‘Smart Meters’ in American homes.”¹³

Much of a smart grid involves the application of existing technology that has been both demonstrated in the electric utility sector and, in some cases, widely deployed in other countries and industries. It is both timely and essential to broader acceptance that deployments move beyond pilots and modestly scaled projects. Wider acceptance of smart grid by electric utilities and regulators will depend on a clear demonstration of benefits. The electric utility industry has completed successful pilot and small scale projects involving new technologies and approaches, including distributed generation and storage and dynamic pricing, which have not yet gained widespread acceptance. Modest projects are simply less likely to have real, substantial, and measurable impacts on resource requirements, market prices, emissions, and reliability. A successful deployment at scale is more likely to be replicated by others. Moreover, some smart grid applications may be cost-effective only if deployed at scale. For example, selective deployment of advanced meters may require the same investments in meter data management and billing systems as a larger scale rollout. Indeed, the investment in the foundation of a common smart grid information and communications architecture becomes cost-effective precisely because it supports multiple, large-scale applications. Significant matching funds should be made available to electric utilities in different parts

¹³ The White House (January 24, 2009). *The American Reinvestment and Recovery Plan – By the Numbers*.

of the country that are prepared to move forward with larger scale smart grid deployments.

To provide a meaningful incentive for deploying smart grid technologies at scale, the upper end of the range of funding available for deployment grants under DE-FOA-0000058 should be lifted or significantly increased to ensure that meaningful incentives, at least comparable in percentage terms to that available for smaller projects, are provided for large scale deployments.

The Department's Notice and Announcement use the example of a demonstration of real-time pricing. Given the use of this example, we note that additional projects are not needed to demonstrate that real-time or dynamic pricing has an impact on consumption. Several pricing programs have demonstrated that dynamic pricing has a significant impact on demand.¹⁴ Projects that incorporate dynamic pricing, of course, should gather and evaluate data to better understand a range of factors and implementation strategies affect such impacts.

THE DEPARTMENT SHOULD PRIORITIZE INTEGRATED, OPEN ARCHITECTURE SMART GRID INITIATIVES

A smart grid is best defined not by individual technologies or applications, but by a systems architecture that integrates, based on open standards, what otherwise could be isolated digital installations and application silos. "The foundation of a smart grid is an open-architecture communications system which, first, provides a common platform for implementing distribution automation, advanced metering, time-differentiated and dynamic pricing, home area networks, and other applications and, second, integrates these applications with existing systems to improve reliability, reduce costs, and enable

¹⁴ See, for example, A. Faruqui and S. Sergici (2009). *Household Response to Dynamic Pricing of Electricity – A Survey of the Experimental Evidence*. The Brattle Group, San Francisco, CA.

consumers to better control their electric bills.”¹⁵ Congress recognized the essential role of an open system architecture in the ARRA by requiring the Secretary to require “as a condition of receiving funding ... that ... projects utilize open protocols and standards (including Internet-based protocols and standards) if available and appropriate.”

The Department should give priority to funding that reflects an integrated smart grid approach and are based on an open architecture advanced communication system. An electric utility may have digital technologies and not have a smart grid. An electric utility may have individual smart applications, but if they are unable to communicate with one another, not have a smart grid. The Department should give priority to applicants that have an integrated approach for smart grid development and are committed to an open systems architecture.

As currently proposed, the Department’s Notice and Announcement could result in funding any installation of microprocessor-based measurement and control, communications, computing, and information technologies, without regard for how they may be integrated into a larger smart grid plan or systems architecture. The Department should require applicants to describe how proposed projects fit and would be integrated into the electric utility’s plan for smart grid development and systems architecture.

Additionally, the Ohio Commission is concerned that requiring grant applicants to specify a single smart grid area in which a project should be considered could bias project selection against integrated deployments that provide a platform for multiple applications in different smart grid areas of interest. Integrated deployments that have the potential to achieve multiple benefits based on a common communications platform should be encouraged and receive a higher funding priority.

¹⁵ *In the Matter of the Applications of Columbus Southern Power Company and Ohio Power Company for Approval of an Electric Security Plan*, PUCO Case Nos. 08-917-EL-SSO and 08-918-EL-SSO, Concurring Opinion of Chairman Alan R. Schriber and Commissioner Paul A. Centolella (March 18, 2009).

CONCLUSION

The Ohio Commission has partnered with the Department of Energy and supported Ohio electric utilities in the exploration and development of a smart power grid. The ARRA gives the Department a unique opportunity to accelerate the transformation of the power system to a smarter grid. ARRA funding should be used to provide incentives and support to those projects that will best advance and significantly accelerate the achievement of smart grid objectives.

Respectfully submitted,

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