

**UNITED STATES OF AMERICA
BEFORE THE
DEPARTMENT OF ENERGY**

Addressing Policy and Logistical Challenges to Smart Grid Implementation) Request for Information

**COMMENTS OF THE OFFICE OF THE PEOPLE’S COUNSEL, WASHINGTON, DC
IN RESPONSE TO THE DEPARTMENT OF ENERGY’S REQUEST FOR
INFORMATION CONCERNING SMART GRID ISSUES**

I. INTRODUCTION

The Office of the People’s Counsel (“OPC” or “Office”), the statutory representative of District of Columbia ratepayers and consumers,¹ respectfully submits its Comments in response to the United States Department of Energy’s (“DOE”) Request for Information issued September 17, 2010.²

OPC’s Comments are guided and shaped by our statutory mandate to “*represent the interests of users of the products of or services furnished by public utilities under the jurisdiction of the District of Columbia Public Service Commission*” and by our participation in the recently completed *PowerCentsDC* smart meter pilot program. *PowerCentsDC* received national recognition in the form of an award for Best Pricing and Demand Response Program from the Association for Energy Services Professionals and recognition from President Obama’s administration. The final results of the *PowerCentsDC* pilot, which will be referred to throughout these Comments, are attached for review.

¹ D.C. Code § 34-804(d)(2001).

² 75 Fed. Reg. 57006, Addressing Policy and Logistical Challenges to Smart Grid Implementation, Sept. 17, 2010.

Pursuant to the Office's mission statement, the Office responds to the questions which address the residential consumer population.

II. SUMMARY OF OPC'S COMMENTS

As consumer advocates, OPC recognizes that there at least three factors that need to be in place in order for the smart grid to deliver the promised benefits to the United States.

- First, OPC recognizes that the distance between where we are now and a successful transition to the smart grid rests on the ability of utility companies to educate consumers before the initial deployment of smart meters about the smart grid vision, and efficiently deliver applications and pricing options that empower consumers with more knowledge and control over their energy usage.

- Second, while technology allows utility companies to deliver more control to consumers, rules need to be in place to ensure that this new technology does not harm consumers' privacy and security interests.

- Last, there needs to be a rigorous regulatory review of the costs and benefits of any smart grid deployment and a clear upfront understanding that there will be no cost recovery for ill designed plans and the use of technology that does not meet interoperability and cyber-security standards.

III. DISCUSSION

A. For consumers, what are the most important applications of the smart grid? What are the implications, costs and benefits of these applications?

For residential consumers, the most important applications of the smart grid are those that capture their electric usage and turns it into actionable information. These applications include in-home displays, smart thermostats, detailed energy usage reports and web portals. The benefit of these applications are realized when the information can be interpreted into steps consumers can take to allow them to control their energy usage, especially during peak demand time and to make their homes more energy efficient.

While many pilots have proven the benefit of in-home displays and smart thermostats, the unknown question about these units is whether it is advantageous to have utility companies provide the equipment to all consumers or have consumers purchase these units on the open market. If regulators decide consumers will have to pay for these units, the regulators should require utility companies provide a list of products which are compatible with the utility's smart meters. OPC submits, given the benefit of in-home displays and smart thermostats, these units should be provided to low-income consumers through a program similar to LIHEAP, where they would be subsidized based upon household income.

If the utility provides the equipment to the consumers, the costs of supplying the devices should be included in the cost benefit analysis conducted by the regulator to determine if the project is beneficial to consumers.

B. What new services enabled by the smart grid would customers see as beneficial?

The new services enabled by the smart grid which will be beneficial for consumers will be those services which can transform energy usage data into insight and action allowing the consumer to make sound decisions. Specifically, there will be applications which can be downloaded to mobile devices and computers. Additionally, there will likely be a new field of energy consultants who will conduct in-home energy audits based upon the consumer's detailed usage data.

C. What approaches have helped pave the way for smart grid deployments that deliver these benefits or have the promise to do so in the future?

There are a number of pilots which have demonstrated a mix of pricing plans and technology that are quite instructive for companies seeking to deploy a smart grid. The results of many of these pilots can be found at www.sgiclearinghouse.org. This website was created by the

Department of Energy to serve as a central point for smart grid stakeholders to share information about pilots conducted throughout the United States.³

The approach used by the *PowerCentsDC* pilot was quite successful and provides several insights to those seeking to develop a pilot program. The attached full report details the background and results of the pilot. Appendix C of the report provides a comprehensive guide for any entity to review and follow when designing a smart meter pilot program.

While the smart grid is poised to deliver benefits to consumers, regulators need to be aware of the erosion of consumer protections resulting from the introduction of smart grid technology. For instance, consumer advocates are concerned about the utility company's ability to remotely disconnect consumers without first making physical contact. As electric service is vital to a residential household's health and safety, regulators need to ensure that the public interest is not sacrificed on the altar of corporate convenience. Rules that require personal contact before termination need to remain in place or be established in order to ensure consumers have every opportunity to avoid having their electric service disconnected.

D. How well do customers understand and respond to pricing options, direct load control or other opportunities to save by changing when they use power? What evidence is available about their response? To what extent have specific consumer education programs been effective? What tools (*e.g.*, education, incentives, and automation) increase impacts on power consumption behavior? What are reasonable expectations about how these programs could reshape consumer power usage?

Several pilot programs have proven that consumers respond to dynamic pricing signals.⁴

However, one pilot in particular, *PowerCentsDC*, was the first to test consumers' response to

³ OPC recognizes that the DOE sponsored the Smart Grid Information Clearinghouse. The website is included in these comments for the benefit of those who may read these comments and find the website useful.

⁴ A. Faruqui and S. Sergici, "Household Response to Dynamic Pricing of Electricity. A Survey of Seventeen Pricing Experiments." November 2008.

three types of dynamic pricing – critical peak, critical peak rebate and hourly pricing - in the same jurisdiction. The two charts below detail the peak demand reductions during the summer and winter and the peak demand reductions experienced for those with and without smart thermostats.⁵

Price Plan	Peak Reduction – Summer		Peak Reduction – Winter	
CPP	34%		13%	
CPR	13%		5%	
HP	4%		2%	

Customer Type	<u>No Smart Thermostat</u>			<u>With Smart Thermostat</u>		
	CPP	CPR	HP	CPP	CPR	HP
Regular (R)	29%	11%	(n/s)	49%	17%	10%
All Electric (AE)	22%	6%	10%	51%	24%	-2%

The results of the *PowerCentsDC* pilot clearly demonstrates that the use of enabling devices such as smart thermostats can have a tremendous impact on reducing demand during peak times. An additional component of this pilot which directly contributed to its success was consumer education. The final report has an entire section dedicated to explaining the types of education pilot participants received before and during the pilot.⁶ OPC anticipates similar results can be obtained in full deployments if consumer education and enabling technologies are made available to consumers.

⁵ *PowerCentsDC* Final Program Report, Sept. 2010, pp. 31-32.

⁶ *PowerCentsDC* Final Report, pp. 19-22.

E. How should combinations of education, technology, incentives, feedback and decision structure be used to help residential and small commercial customers make smarter, better informed choices? What steps are underway to identify the best combinations for different segments of the residential and commercial market?

OPC has learned from the *PowerCentsDC* pilot and a review of other deployments throughout the country that early education is essential to consumer adoption of smart grid technology and eventual smart grid success. Early education is so important because the smart grid radically changes the relationship between the utility company and its customers from being passive to participatory. In order for consumers to be able to meaningfully benefit from this new relationship, they must understand why the smart grid is needed, how it will benefit them, and how they can use the new data and tools available to control their energy consumption. The process of learning all this information should begin before or at the time the consumer has a smart meter installed in their home.

There are two reasons why all the variables listed in the question above should be used in various combinations for residential and small commercial customers. First, given the wide variety of load profiles and lifestyles for residential and small commercial customers, there is no one size fits all solution that will work. Second, unlike mid-sized to large commercial customers who have full-time staff members to review energy data and make energy consumption decisions, residential consumers are not accustomed to having energy data and tools available to inform their energy decisions. Therefore, a variety of these variables should be made available to see what works best for these customers.

There are several pilots available that identify the best combinations of technology, education and incentives for the small commercial and residential markets. As referenced above, one of the best tools to identify which combination works best is the DOE's Smart Grid Information Clearinghouse found at www.sgiclearinghouse.org.

F. Are education or communications campaigns necessary to inform customers prior to deploying smart grid applications? If so, what would these campaigns look like and who should deploy them? Which related education or public relations campaigns might be attractive models?

Upfront education and communications campaigns are absolutely necessary to inform customers *prior to* any deployment of smart grid applications including the initial exchange of meters in residents' homes or yards. Consumer education is important because the smart grid is much more than a technological upgrade; it represents a significant change in the relationship between the utility and its customers. The extent to which electric company smart grid efforts will be successful depends on the company's ability to develop and grow a strong relationship with its customers. The first step in developing this new participatory relationship is to inform customers about the change that is coming, how it will be deployed, the impact it will have on consumers in the short and long term and what benefits consumers will derive. This information is best delivered via a well organized consumer education and communications campaign. OPC believes the Maryland Commission is on the right path by requiring the utilities implementing AMI in that state to provide education before the smart meters are deployed. In its order granting BGE conditional approval for its AMI project, the Maryland Commission stated,

the success of this Initiative, and the likelihood that customers will actually see the benefits this project promises, depend centrally on the success of the Company's customer education and communication effort. It is not enough just to have a plan – the Company must devote the necessary time and resources to this aspect of the Initiative, education and communication must be ready to go before each stage of the deployment, and the Company cannot artificially limit the funds and resources available to education

and communication by sticking rigidly to predetermined budgets or by diverting resources from education to other tasks. Timing is crucial – customers must get the information they need *before* BGE installs meters in houses, *before* Peak Time Rebates begin, and *before* any other programmatic changes would take effect.⁷

The communications campaign should utilize public service announcements on local television stations, radio ads and newspapers notifying the public that the smart grid is soon to be deployed and should direct the consumer to the utility company’s website for additional details. Additionally, the PSAs should direct consumers to attend informational meetings where they can learn about, among other things, the deployment schedule and when consumers can expect certain benefits.

The utility company’s website should include a clear explanation as to why the smart grid is being deployed and how the smart grid will empower the consumer to have better control over their energy usage. The company’s website should also include short videos explaining various aspects of the smart grid, including what will happen on the day of the meter exchange, the benefits of AMI and information concerning energy efficiency.

Perhaps the closest model of a communications plan to be followed is the DTV transition which took place in 2009. The DTV transition is analogous because it was a national mandate that required consumers to make a fundamental change, purchase a digital converter box, after being educated that the nation was switching to digital channels. The FCC used mass media, the Internet and people on the ground to educate consumers in local venues, such as home owners association meetings, places of worship, malls, parent teacher association meetings, and community association meetings about the DTV transition.

⁷ Case No. 9208, *In the Matter of Baltimore Gas and Electric’s Request for Authorization To Deploy A Smart Grid Initiative and to Establish A Surcharge for the Recovery of Cost*, pp. 43-44, Order No. 83531, rel. (Aug. 13, 2010).

G. How should the benefits of smart grid investments be quantified? What criteria and processes should regulators use when considering the value of smart grid applications?

The costs and benefits of any smart grid investment should be quantified via a rigorous evidentiary hearing. All costs sought to be recovered must be verifiable and be found to be just, and reasonable, and all benefits must be tangible and have benchmarks to determine if consumers actually realized the benefits. Both the costs and the benefits should be reviewed throughout the deployment process to guard against cost overruns and to determine when the consumer benefits are beginning to be realized. When considering the value of smart grid applications, regulators should view them in comparison with the appropriate consumer protections that need to be in place to ensure the benefit of the application does not invite harm. For example, when a consumer's data is transferred from a utility to a third party for evaluation purposes, there must be rules in place to ensure the consumer's express consent was properly given and the purpose for which the data will be used is clearly detailed in the document authorizing the transfer.

State regulators should look to other states and professional organizations that are developing a variety of cost benefit analysis models to determine which one works best for their particular jurisdiction. Additionally, all states must make clear to the utility companies seeking cost recovery that there will be no cost recovery for: 1) failing to meet pre-established benefit benchmarks, 2) implementing faulty project designs, and 3) using technology and protocols that do not adhere to established interoperability and cyber-security standards.

H. How should the costs and benefits of enabling devices (e.g. programmable communicating thermostats, in home displays, home area networks (HAN), or smart appliances) factor into regulatory assessments of smart grid projects? If these applications are described as benefits to sell the projects, should the costs also be factored into the cost benefit analysis?

As shown in the *PowerCentsDC* pilot, the use of enabling devices can have tremendous impact on peak load reductions, as these devices can be programmed to lower energy usage during the peak times once a signal is received from the smart meter. Therefore, it is clear these devices need to be a part of any AMI deployment using dynamic pricing. However, it is not clear at this time whether the utility company should be mandated to use the enabling device used in the pilot that supported the company's business case.

There are two advantages to requiring the utility company to use the enabling device used in the company's pilot program. One, there is greater assurance the enabling device used in the deployment will be compatible with the smart meter being used in the AMI network. Two, it will maximize the number of consumers who use the enabling device, since the utility regulator would just have to grant the utility company permission to install the device in the home, thus obviating the need for the consumer to take the time and money to purchase a unit and install it themselves. Taken together, these advantages will likely lead to greater peak time reduction results. If this option is chosen, the utility company should be required to produce and be held accountable to a cost benefit analysis based upon the enabling device used.

If the company is not required to use the enabling device used in the company's pilot, consumers would then have the option of purchasing a compatible device on their own. This option would lower the utility company's overall cost of the AMI deployment, as the company would not have to purchase a large number of enabling devices. Choosing this option would also spur innovation in the in-home device and smart thermostat industry, as vendors could develop

products to meet consumers' specific needs and desires. The drawback to this option is that it burdens consumers with additional upfront costs and may not produce the level of peak load reductions as experienced in the pilot because the company cannot control when the enabling devices are purchased and installed. Moreover, peak load reductions may be compromised by compatibility issues with devices that, for any number of reasons, may not fully communicate with the utility company's smart meters. If this option is chosen, the utility company should be required to produce and be held accountable to a cost benefit analysis that takes into account the factors that are likely to reduce peak load reductions.

I. When should ratepayers have the right to opt-out of receiving and paying for smart grid technologies or programs like meters, in home displays, or critical peak rebates? When do system-wide benefits justify uniform adoption of technological upgrades? How does the answer depend on the nature of the offering?

Ratepayers should be able to opt-out of smart grid technologies only if opting out does not diminish system-wide efficiencies that benefit all customers. For instance, requiring all customers to have smart meters will benefit the entire system in that it will allow the utility to have an accurate system wide load profile and be able to know specifically where outages exists. Moreover, it will prevent the utility from having to have more than one method of collecting usage data and billing consumers. However, this issue emphasizes the need for a cost benefit analysis to ensure that consumers do in fact experience tangible and substantial benefits from any smart grid deployment.

However, as it concerns dynamic pricing rate plans, consumers should have the option to opt-out of rate plans as these directly impact their lifestyles. If a state is going to mandate any form of dynamic pricing, it should be a program which does not punish consumers who are unable to shift their load to off peak times. Critical peak rebate programs provide such a structure.

IV. CONCLUSION

WHEREFORE, OPC respectfully requests the DOE consider and accept OPC's recommendations contained herein for the benefit of residential consumers in establishing its smart grid policies.

Respectfully submitted,

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