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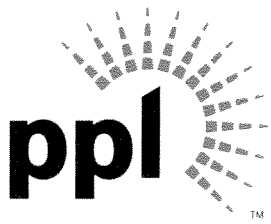

VIA FEDERAL EXPRESS

April 29, 2009

James J. McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, Pennsylvania 17120

Re: Smart Meter Procurement and Installation Plans
Docket No. M-2009-2092655

Dear Mr. McNulty:

Enclosed for filing on behalf of PPL Electric Utilities Corporation ("PPL Electric") are an original and fifteen (15) copies of PPL Electric's reply comments in the above-captioned proceeding. PPL Electric is submitting these reply comments pursuant to the Public Utility Commission's ("Commission") Secretarial letter dated March 30, 2009.

Pursuant to the Commission's March 30, 2009 Secretarial letter, PPL Electric is sending the enclosed reply comments to the Commission's Act 129 e-mail account. In addition, PPL Electric is posting this filing on its Act 129 website. The URL address for that website, which is available to all interested parties and to the public, is www.pplact129.com.

Pursuant to 52 Pa. Code 1.11, the enclosed document is to be deemed filled on April 29, 2009, which is the date it was deposited with an overnight express delivery as shown on the delivery receipt attached to the mailing envelope.

In addition, please date and time-stamp the enclosed extra copy of this letter and return it to me in the envelope provided.

If you have any questions regarding this filing or PPL Electric's Act 129 website, please call me at (610) 774-4254.

Very truly yours,

Paul E. Russell

Enclosures

cc: Kriss E. Brown, Esquire
Charles F. Covage

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Smart Meter Procurement and	:	
Installation Plans	:	Docket No. M-2009-2092655
	:	

Reply Comments of PPL Electric Utilities Corporation

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

I. Introduction

On October 15, 2008, Governor Rendell signed HB 2200 into law as Act 129 of 2008 ("Act 129" or the "Act") with an effective date of November 14, 2008. The Act expands the oversight responsibilities of the Public Utility Commission ("PUC" or the "Commission") and imposes new requirements on Electric Distribution Companies ("EDCs") with the overall goal of reducing energy consumption and demand, enhancing procurement of generation supply for default service, expanding the installation of smart meter technology, and expanding alternative energy sources.

By Secretarial Letter dated March 30, 2009, the Commission issued and requested comments on a draft staff proposal regarding electric distribution company smart meter procurement and installation plans. The staff proposal, which was included with the Secretarial Letter as Attachment B, sets out proposed standards each EDC plan must meet and provides guidance on the procedures to be followed for submittal, review and approval of all aspects of each smart meter plan. The staff proposal also sets out proposed minimum smart meter capabilities, guidance on deployment of smart

meters and cost recovery. Also included with the Secretarial Letter, as Attachment A, was a list of additional questions regarding specific detailed aspects of smart meter technology. While the Secretarial Letter established a due date of April 15, 2009 for comments and April 27, 2009 for reply comments, these dates were subsequently extended by Secretarial Letter to April 20, 2009 for comments and April 29, 2009 for reply comments.

PPL Electric Utilities Corporation ("PPL Electric" or the "Company") is an EDC serving 1.4 million customers in central eastern Pennsylvania. PPL Electric was an active participant in the development of Act 129 and continues to be an active participant in the development of the rules and regulations necessary to implement Act 129. PPL Electric filed initial comments at this docket on April 20, 2009. PPL Electric appreciates the opportunity to provide reply comments and looks forward to continuing to work with the Commission and all other stakeholders to address issues associated with implementation of the Act. For the sake of efficiency, PPL Electric's reply comments are organized into two sections. The first, titled "Reply Comments to General Issues", responds to issues that are raised in the staff proposal or are more general in nature. The second section, titled "Reply Comments to Attachment A Issues", responds to issues raised by the specific numbered headings in the Commission's original Attachment A.

II. Reply Comments to General Issues

1. The Company supports the concept of a longer period for review and approval of EDC's smart meter plans.

On page 2 of its initial comments, the Office of Consumer Advocate ("OCA") recommends a longer period of time for the review and approval of EDC's smart meter plans. PPL Electric agrees that smart meter plans will address a number of complex issues during a time when the parties involved will also be dealing with energy efficiency and conservation plans required by Act 129 and other matters arising from the expiration of generation rate caps. The Company believes that it is important that all parties have a clear understanding of smart metering

plans, timetables for making functionalities available to customers, and any decision points along the way. Accordingly, the Company would support a longer period for review and approval in furtherance of those objectives.

2. **PPL Electric agrees with the OCA that the list of capabilities provided in Section C goes beyond the smart meter functionality required in Act 129 and EDCs plans should not be required to provide this additional functionality.**

In Section C, the proposed Implementation Order states that the Commission believes that smart meter technology can support more than demand side response and pricing programs. In its initial comments, PPL Electric agreed, noting that it uses its own smart meter system for outage detection, outage restoration, theft detection, net-metering, energy settlement, curtailment verification, customer usage analyses, and responding to customer inquiries regarding high use among other functions. The Company noted, however, that in many cases, the ability to perform these functions is evolving and, in some, such as remote disconnect, there are institutional impediments to deployment. The Company also noted the list of capabilities includes some, such as remote programming capability, that are vague and, depending on how they are further defined, could themselves drive technology choices in less efficient ways.

On page 10 of its comments, the OCA recommends that the list of additional capabilities should be eliminated, but recommends that the Commission direct each EDC to evaluate the cost effectiveness of the additional capabilities except for service limiters, pre-paid service functionality, and remote termination which raise significant public policy issues and should not be considered further within the smart meter effort. PPL Electric believes that, given the public policy concerns associated with certain of these items and the vagueness and evolutionary nature of others, the best course of action would be to eliminate the list of sixteen capabilities from further consideration. PPL Electric does not believe it efficient to ask EDCs to attempt to develop, on an individual company basis, cost/benefit analyses of vaguely defined future capabilities. The Company also agrees with the OCA that, in any event, remote disconnection and reconnection, and service-limiting

and pre-pay functionality involve public policy considerations that are so significant that it is unclear what specific functionalities, processes and safeguards EDCs would be required to incorporate into their design.

3. **PPL Electric agrees with comments by the OCA, Industrial Energy Consumers of Pennsylvania ("IECPA"), and Citizen Power regarding the need for customer consent regarding access to the meter or to data.**

On page 12 of its comments, the OCA recommends that a procedure be put in place that requires access to customers' meters and data only be granted through the affirmative consent of the customer. On page 5 of its comments, IECPA recommends that meter data, or access to meter data, not be released without explicit customer authorization. On page 2 of its comments, Citizen Power recommends that usage information be treated confidentially and that affirmative permission be required before any information is released. PPL Electric agrees that physical access to the meter should only be granted on condition of an affirmative consent by the customer. PPL Electric also agrees that usage information should be treated as confidential and that a procedure should be in place to permit customers to withhold that data. However, PPL Electric does not necessarily believe that affirmative consent is necessary. In the Company's experience, customers are likely to get significantly more competitive offers and more economically advantageous offers if they make their data available for pricing purposes. Except in the case of the largest industrial customers, it is the Company's belief that this data actually provides little competitive intelligence. PPL Electric is in the process of using its existing smart meter capabilities to implement an energy settlement system that will permit electric generation suppliers (EGSs) to settle to any customers' actual hourly loads instead of to a load profile that represents a hypothetical average customer and not the use pattern of that specific customer. This system should permit customers to extract from the competitive market pricing offers that more closely mirror the true cost to serve the customer and, thereby, permit the customer to realize the pricing benefits of its demand control efforts. Those benefits are not

available if, through the withholding of data, the customer creates barriers to shopping.

4. **PPL Electric reiterates the concerns raised in its initial comments that the issues of access to meters and to usage data need to be clarified. In particular, PPL Electric is concerned that the comments of Constellation NewEnergy recommend functionality which may be redundant and unnecessary for most customers.**

In its comments, Constellation NewEnergy calls for, among other things, "direct access to the meter to poll interval data" (Constellation, pg 5), IP addressable meters with read only passwords provided to customers (Constellation, pgs 2 and 5), and access to the meter through a standardized request process administered by the RTO (Constellation, pg 5). On page 4 of its comments, Constellation states that "data should be made available on a real-time basis, on-demand, and at the meter directly through a web service and a pulse output" and also, "the more avenues that are provided for customers to access data directly, the more informed customers will be in making their decisions on electric service". The Company believes that Constellation's comments in this regard are unsubstantiated and are likely to result in EDCs and vendors pursuing technologies that may not result in systems that are immediately useful and cost effective to customers. While the Company applauds Constellation's vision, and even shares much of it, the Company believes, based on its actual experience over the last nine years in actually implementing smart metering systems and applications, that this effort needs to have concrete and realistic objectives.

Consistent with its initial comments, the Company is concerned about the use of the terms "access" and "direct access" and whether they mean access to raw data or validated data, access to data residing in the meter or in a repository, physical access or electronic access, access to communication systems, access to customer equipment, access to a HAN, access to the meter itself, or access to other elements within what may be described as "smart meter technology". Meters are fundamentally counting devices and the Company believes that the most important

functionality related to meters is the data they collect. The Company believes, as stated previously, that there are a limited number of specialized applications that require real-time data and, therefore, require direct access to data in the meter. The Company believes direct physical access to the meter should only be necessary for the purpose of obtaining real-time usage via meter pulses. If the meter is so designed, then electronic access to the meter may serve that need. Usage data that is not real-time is not likely to be stored in the meter for significant periods and it will not be validated data. The Company believes that, overwhelmingly, the largest number of applications involve data that has been validated and edited (as necessary), stored in a repository, and made available to applications that will format the data in ways that will turn it into information that is useful to customers. Access to these data should be easy for both the customer and to any party, including EGSs, the customer should chose to designate. This should include electronic access via standard electronic data interchange formats and via spreadsheet that can be downloaded and reconfigured by the customer or his/her designated third-party.

A part of the smart meter technology is network communications technology. The Company is concerned that the use of the term "access" with no other clarification may be interpreted to mean access to a utility communication system, when access to control customer equipment or to send customers information can be done by a variety of network means (for example, internet, radio frequency, cellular, and direct wired) that do not need to involve the utility. The Company is also concerned that access to utility communications systems may compromise the security of the electricity delivery system.

III. Reply Comments to Attachment A Issues

1. Overall Adaptability

PPL Electric agrees with the overall opinion of EDCs and vendors that "plug-n-play" standards are not necessary. As PECO states, "The meter...and

control device community has shown the ability to use the consensus standards creating process to create usable tools for the industry." PPL Electric is working toward the ANSI C12.19 and C12.22 standards and agrees with the other EDCs that these standards can serve as a basis for data and communication processes.

Although PPL Electric agrees that an Internet Protocol holds much merit, it is not the only means to the process. Constellation Energy describes a viable platform, but the Commission should not mandate a single method or process as they describe.

2. Home Area Network Protocols (HAN)

Standard protocol

Most parties appear to agree with PPL Electric's initial comments that a single standard for HANs is not necessary nor should it be mandated by the Commission. The Company agrees with PECO that developments in certain protocols such as Zigbee and the HomePlug alliance offer promise. Tendril recommends that the Commission should accept all nationally recognized non-proprietary standards similar to an approach taken by the Texas PUC. These comments confirm to PPL Electric that the Commission should avoid the establishment of standard protocols and allow the market to continue to evolve.

Meter information via HAN or internet web services

Most commenters agree that both direct connection to the meter and providing data via the internet are acceptable means of providing meter information. There also appears to be agreement that the choice of one means over the other should be made in light of the purpose or application being served. PPL Electric agrees with PECO's comment that the two information delivery methods should complement each other.

PPL Electric agrees with other commenters that, for the purpose of delivering validated billing quality data, the internet is the superior choice. However, raw data obtained directly from the meter is required to, as PECO states, "illustrate information that helps customers understand and manage their energy use in a near

real time manner." An example of such an application would be a demand response program that is managed in real time as described by Constellation (Constellation, pg 7).

Interconnectivity through the Meter

Some commenters believe that the meter should serve as a common gateway for all information including consumption information, pricing information, and control signals. As stated in its initial comments, PPL Electric believes that the meter is fundamentally a measuring device and its main function is to provide energy usage data. PPL Electric finds the comments of the OCA to be pertinent to this issue. On page 1 of its appendix, the OCA observes that in-home technology may be cost-prohibitive for many residential customers. Furthermore, on page 5 of its appendix, the OCA observes that direct load control programs exist which rely on control signals being passed by means other than the meter. Finally, also on page 5 of its appendix, the OCA describes an approach to residential demand response which would employ day-ahead pricing and provide for the customer to establish the plan for the next day's energy usage before leaving home. PPL Electric believes that the approaches and concerns outlined by the OCA are all sound and reasonable and none of them are served by establishing the meter as a gateway. Indeed, the OCA comments (on pages 1, 3, and 4 of its appendix) that, at least initially, information may need to be available through means other than the meter. On page 4 of its appendix, the OCA specifically questions the cost effectiveness of requiring the meter to communicate price information.

3. <u>Utility usage data and meter access</u>

PPL Electric concurs with the comments of most parties that hourly usage should be the fundamental interval around which EDC-wide smart meter systems are designed. The Company also concurs with commenters who recommend that data be retrieved at least once per day. Once per day retrieval will support having validated data available for customers and for applications within two days. The Company believes that, while specialized applications may have need for shorter

intervals and quicker retrieval, there is no basis for providing such capabilities broadly to residential or small commercial customers. Hourly data retrieved daily has proven, in PPL Electric's experience, to be appropriate in providing effective rates for time-of-use and real-time price to these segments as well as providing a basis for informed decisions on energy efficiency and conservation options.

PPL Electric concurs with all the EDCs that usage data should be validated before it is used in the majority of applications including web presentment to customers and third parties and billing applications. The Company also agrees with the other EDCs that while there is a limited set of validation, editing, and estimation (VEE) protocols that should be employed (for example, spike check) the exact parameters used in those protocols should not be standardized (for example, the percentage above average use that defines a spike). EDCs should be permitted the flexibility to apply the set of parameters that is most appropriate to the capabilities of their meter systems and the needs of the applications in which data will be employed. PPL Electric notes that its meter data management system allows the company to group meters into collections and customize the VEE for each collection.

PPL Electric agrees with PECO, First Energy and Duquesne that no maximum period for the completion of VEE analysis should be established. The Company does agree that VEE needs to be completed in a reasonable time frame and one that supports the needs of customers, EDCs, EGSs, and third parties who may be engaged by those entities. The Company is concerned with Allegheny's recommendation that validated data be available within 24 hours. As stated in its initial comments, the Company does not believe that it is possible, nor is it necessary, to obtain usage data from over 1 million meters, run it through a VEE application, and post it to applications each and every day. It is the Company's belief that a two-day time frame is necessary to integrate data collection, VEE, and posting with existing billing and customer service processes. The Company believes that the difference between a two-day process and a one-day process is not relevant to applications that are using other than real-time usage information.

4. Meter to EDC Communications

Standardized public protocols from the meter to the grid

PPL Electric concurs with the comments of EDCs and vendors that a specific protocol is not required from the meter to the EDC's backhaul meter data communication medium. It is unclear, however, exactly what is meant by the term "grid". Because of this ambiguity, some of the respondents appear to have commented in different contexts. PPL Electric agrees with Trilliant and First Energy that ANSI C12.19 and C12.22 will play an important role in standardizing interoperability between meters and communication systems and does endorse pursuit of those standards. However, as stated in its initial comments, if "grid" means communication with sensors and controls on the distribution system in an effort to enable "smart grid" capabilities, the Company believes that it is premature and beyond the scope of this effort to attempt to establish standards for the development of a smart grid.

Standardize protocols with respect to service territory geography and conditions

PPL Electric agrees with the almost unanimous response from all commenters that this decision should be left to the EDC with respect to the technology deployed and the particular conditions involved.

Least cost bi-directional communication mediums

PPL Electric concurs with the comments of PECO and First Energy that it is impossible to define a least cost approach. As PECO states, "A general least cost solution (based) on the implementation costs of different solutions are highly dependent on the individual utility". The Company also agrees with Tendril's comment that it would be wise for the Commission to refrain from dictating specific communications platforms.

6. **Automatic Control**

How can smart meters effectively support automatic control of customer's electricity consumption by customers, utilities and the customer's third party?

The comments of PECO, Sensus, Elster, Trilliant, and Constellation New Energy define one or the other of two different, but complementary approaches to support automated controls. One approach is direct load control using separate stand alone communication from the EDC or third party via various mediums directly to the load control devices. This approach is in wide use, most notably the thousands of residential customers who have, for as long as twenty years, water heaters and/or air conditioners directly controlled by their EDC, their co-op, or a third party. The second approach is an integrated HAN with consumption and pricing data supplied to the intelligent HAN which then controls the devices with parameters set by the customer or third parties. In this approach, data could be provided through the meter or it could be provided by other means. PPL Electric believes that either of these two approaches is viable and the selection of the approach should be dependent on the specific application and demand response required. In this regard, the Company reiterates its support (see Item 2, above) of the OCA's observations regarding the high cost of high-tech in-home equipment and the need to allow the market place and the technology evolve together. PPL Electric also agrees with comments of the OCA and of Citizen Power that in-home equipment should be owned by the customer or a third party who has entered into a contractual arrangement with the customer.

How is the smart metering system engaged in the initiation, maintenance, relinquishment, and verification of the automatic control of customer consumption?

As stated above, PPL Electric believes that load control can be initiated by either direct communication with energy consuming equipment or by communication from a HAN. The Company also believes that the choice of a method should be dependent on the specific application and demand response required. For example,

some demand response may be at the discretion of a third party, in which case the third party could send a control signal directly to the equipment or to the HAN which would, in-turn, communicate with the equipment. If the demand response is critical to the third party, it is most likely that it will establish a communication path based largely on reliability. With regard to maintenance and relinquishment, the issue is most likely to be the ability of the customer to override the control signal. Again, in the case of demand response that is critical to the third party, the third party is likely to select a communication path and control system that is secure. Finally, in terms of verification, the comments of Constellation NewEnergy indicate that there are some demand response programs that are so critical that the third party desires to monitor usage on a near real-time basis which requires direct access to meter pulses. On the other hand, the existing PJM Economic Load Response Program permits reductions to be submitted for verification up to 60 days after the event.

PPL Electric concludes from this that there is likely to be a significant need for a direct communication approach to load response and that HANs may fill the role of a consumer tool that permits the customer to reduce his usage, conform his use to specific time periods in order to take advantage of time-of-use rates, or take advantage of non-critical load reduction programs.

What smart metering protocols and communication mediums are needed to implement these automated controls? Should the Commission establish standard protocols and standards for this purpose?

PPL Electric concurs with the comments of Elster, Sensus and Tendril that home automation control standards are an industry-wide effort and a work in progress. As Elster states, "It would be…counter productive for Pennsylvania to decide on a solution that would end at the state line."

PPL Electric acknowledges Constellation NewEnergy's desire (pg 8) for standard web services that are broadcast by the RTO (in the event of capacity or transmission events) and by an EDC (for distribution related load curtailment events). However, the Company notes that matters regarding the RTO are not within the jurisdiction of the Pennsylvania PUC. Also, the Company believes that the

issue of notifications relative to distribution load curtailments anticipates smart grid capabilities that do not currently exist and are only understood conceptually at this time. The Company believes that establishing such standards is premature.

PPL Electric believes that while Zigbee may be an attractive technology and there may be a temptation to establish standards around Zigbee, we disagree with the comment of Allegheny Energy that Zigbee standards are the only standards that are required.

What energy consuming assets can be controlled by these smart meter systems for each of the customer segments, and how is control of these assets impacted by the choice of communication medium and protocol?

PPL Electric concurs with the comments of the other EDCs that each customer segment has its own specific needs for energy control and management. PECO provides a table of controllable assets, listed by customer segment, which typifies the applications. The Company also concurs with Tendril's observation that the choice of a communication medium and protocol has no meaningful impact on the control of assets.

IV. Conclusion

For all of the reasons stated above, PPL Electric Utilities Corporation recommends that the Public Utility Commission proceed with development of the draft staff proposal regarding electric distribution company (EDC) smart meter procurement and installation plans consistent with PPL Electric Utilities Corporation's comments.