

April 20, 2009

Mr. James J. McNulty
Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Docket No. M-2009-2092655 – Comments on Behalf of Elster Integrated Solutions in Response to the Draft Staff Proposal Regarding EDC Smart Meter Procurement and Installation Plans

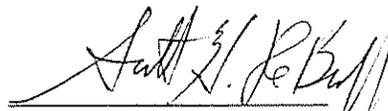
Dear Mr. McNulty:

Enclosed herewith please find an original copy of the “Comments on Behalf of Elster Integrated Solutions”. This document has been electronically filed through the PUC’s e-filing system. Please enter this into the docket. An electronic copy of the Comments will be sent to the Commission’s Act 129 email account at ra-Act129@state.pa.us.

Should you have any questions, please do not hesitate to contact me at (717) 233-5731.

Sincerely,

RHOADS & SINON LLP

By: 
Scott H. DeBross, Esq.

Enclosures

cc: Act 129 email account

**COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**SMART METER TECHNOLOGY
PROCUREMENT AND INSTALLATION
PLANS**

DOCKET NO. M-2009-2092655

**COMMENTS ON BEHALF OF
ELSTER INTEGRATED SOLUTIONS**

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DATED: APRIL 20, 2009

COUNSEL FOR ELSTER INTEGRATED SOLUTIONS

**COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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AND NOW COMES, **Elster Integrated Solutions** ("Elster" or "EIS"), by and through its counsel, **Scott H. DeBroff, Esquire** and **Alicia R. Petersen, Esquire** of Rhoads & Sinon LLP, for the purpose of these "Comments" with respect to this proceeding before the Commonwealth of Pennsylvania Public Utility Commission ("PUC" or the "Commission"). In support of this docket, Elster avers the following:

1. Elster, with its headquarters in Raleigh, North Carolina and operations in 22 countries, serving customers in over 70 countries, is a leading provider of Advanced Metering Infrastructure (AMI) solutions that help utility companies improve revenue cycle services, customer service, delivery reliability, and workforce utilization. With more than 100 years of electricity metering experience (formerly as Westinghouse Electric Corporation and ABB Electricity Metering), Elster understands the unique requirements of utility customers worldwide.

2. Elster provides open standards-based network solutions to utilities for advanced metering infrastructure (AMI), demand response, and grid management. Its solutions enable utilities to better serve their customers, develop new revenue sources, and reduce overall expenses.

3. Elster has been involved extensively in related AMI proceedings, including the Energy Policy Act of 2005 (EPACT) proceedings across the country, and before other state public utility commissions.

4. In Pennsylvania, Elster has participated in regulatory activities for some time, and has been a party in the Act 129 implementation rulemaking since its inception. Our interest in participating in this next phase of the proceeding is to inform and educate the Commission on the issues revolving around Advanced Metering and the creation of an Advanced Metering Infrastructure (AMI) and their value to both utilities and customers.

5. Following are Elster's comments to the March 20, 2009 draft Staff Proposal regarding electric distribution company (EDC) smart meter procurement and installation plans.

**Additional Questions Related to the Commission's
Smart Meter Procurement and Installation Program at Docket No: M-2009-
2092655**

1. Overall Adaptability:

- a. Should there be some common "plug and play" format and/or hardware on the meter to accommodate future technology changes? If so, provide suggested standards for this capability.

Answer: Every utility system is unique and maintains a 'legacy' system that will require customized software interfaces using industry protocols. There is no one interoperability standard. Utilities should be able to select what is best for them and their customers. A common approach to 'future proofing' RF mesh systems is over the air firmware upgrades whereby a signal from the utility offices upgrades all the meters by radio. Elster supports numerous standards—American National Standard ANSI C12.22, the National Rural Electric Cooperative Association MultiSpeak standard, DNP3, and Internet protocols, for example.

2. Home Area Network (HAN) Protocols

- a. What HAN protocol may be appropriate from the meter to the customer? What HAN open protocols are most readily available and accessible to customers? Should the Commission standardize a protocol? Should there be more than one protocol?

Answer: Here, too, there is more than one protocol. At present, commercial communications to the devices, controlling about 50% of the residential electrical load (HVAC, water heaters) can be purchased, however the remaining load (plug loads) controls are less available. The Energy Independence and Security Act of 2007 (Public Law 110-140) Section 1305 establishes a process under the National Institute of Standards and Technology which calls for voluntary interoperability controls standards for electrical appliances subject to Energy Policy and Conservation Act national mandatory energy efficiency standards.

- b. Should smart meter information be available through a HAN or an internet browser? If through an internet browser, should this come from a website, or directly from the meter, or both? Through which browsers should this be made available?

Answer: On the order of 7% of utility customers nationwide have Internet access so there would need to be options, not only an internet browser. A logical means to drive the internet connection would be from the utility, as the product could be periodically upgraded and not much burden would be placed on the PC at the customer end. Many HAN devices are designed to be directly driven from the meter, including in-home displays, smart thermostats and load control switches.

- c. Should there be other interconnectivity between the meter and other equipment in the home? If so, how much? [read capability vs. two way communication]

Answer: The most valuable connection to a meter is typically to a smart thermostat, which would provide the capability for something around 30% peak load reduction. The automated function may be manually overridden by the consumer. An in-home display (or internet browser) provides much less demand response as the consumer has to be there to see the load impact and take action; while with a smart thermostat the demand response is automated. The benefit of making communication two-way is that the actuation of demand response action being taken is communicated back to the utility, which can be useful for billing and/or verification and validation of demand reduction. The Brattle Group has extensively studied what demand response occurs from which technologies and some of their studies have been expressly for the PJM region.

3. Utility usage data and meter access:

- a. What usage data should the utility acquire through the smart metering system?
- b. Should the Commission establish minimum standards on how often the utility should acquire the usage data from the meter?
- c. Should the Commission establish minimum data intervals? If so, what should that be? [Examples: 15 minute, 30 minute, 1 hr]

Answer: Typical commercially available residential systems are capable of 15-minute data intervals. The interval selected may be more or less frequent depending on the specific utility application. Bear in mind that short data intervals and frequent polling adds data processing costs—the application should be optimized.

- d. What minimum timeframe should the Commission establish on when usage data is made available by the Meter Data Service Provider (MDSP, usually the EDC) to the EDC, CSPs/EGSs and customers, respectively?
- e. Should this usage data be validated first?

Answer: The data communicated to an in-home display (IHD) typically is not validated. Since the purpose of the IHD is to provide data good enough for customer information and possible action, it would not need to be the same accuracy as billing data.

For billing, the equipment should be designed to meet applicable ANSI C12 series standards requirements. If the AMI meter is the data ‘gateway’ to the premise, these requirements would be already satisfied. If another device is the ‘gateway’ careful consideration would need to be given to how these accuracy requirements would be met.

An example of the cost of third party data requirements may be found in the Texas AMI

proceedings, where substantial additional costs were necessary to satisfy the proposed requirements from retail electric providers. (Texas has retail competition). See in particular, the Oncor proceeding where a fairly detailed assessment of the additional equipment and associated costs is provided.

- f. Should the Commission establish a common Validation, Error Detection, and Editing (VEE) protocol? If so, what should that be?
- g. Should the Commission establish a maximum period in which the MDSP should complete the VEE analysis? If so, what should that maximum period be?
- h. How should customers be provided direct access to usage information? [examples, website access, HAN to an in-home display or other devices]

Answer: As discussed above, customers should have options such as, for example, Internet access, in-home displays, and/or smart thermostats with displays.

- i. Should the Commission establish standard protocols and communication medium for providing direct access to usage information from the meter to the HAN? If so, what should those be?
- j. How should this Commission provide direct access to the meter to third parties? What policies or regulations should this Commission promulgate to ensure that these third parties are provided timely access under reasonable terms and conditions to the customer metering facilities?

Answer: Please see reply above. The degree of and frequency of third party access is costly. There is also a cost allocation issue.

- k. What communications, software or hardware can facilitate this direct access to the meter for customers and their third parties, and should the Commission establish requirements and or standards to facilitate this access?

Answer: There will need to be limits on direct access to meters because there are potential security issues that the electric utility is responsible for. Third parties may be provided access to usage data, however, third parties should have limits on what else they could do. AMI systems security measures are extensive to assure security of the grid and a thoroughly vetted systems administrator in a secure location is typically the only person who can exercise all AMI functionality.

- l. What electronic access to customer meter data do CSPs and EGSs need from EDCs, that they currently do not have? Provide specific examples where these entities do not have such access currently, and provide examples, if available, of electronic transactions that can be adopted by this Commission to comply with this statutory requirement.

4. Meter to EDC Communications:

- a. Should the Commission standardize public protocols from the meter to the grid?

Answer: The way an AMI system works is that there is a local network that communicates with devices called 'collectors' (in Elster's case these are usually meters). The communications from the 'collectors' to the utility wide area network is via a number of commercial paths, for example,—cable, Ethernet, cellular telephone, satellite radio, etc. (For example, Elster equipment needs to work with several commercial systems by others.) The PUC should not specify which is 'better' or 'best'. The best deal for the ratepayers will be whatever turns out best in the commercial process.

- b. If certain protocols are not effective in certain geographic or rural regions, should the Commission adopt a list of protocols that can accommodate all of Pennsylvania customer's communication requirements? If so, what additional protocols should be adopted?

Answer: AMI vendors know which measures are needed where and will, as a matter of the commercial process, bid whatever equipment is needed. There is no need for the Commission to specify engineering details.

- c. What bidirectional communication mediums [Example: broadband over powerline, cellular, phone lines, RP] are least cost? What are the pros and cons of each?

Answer: Here again, the needs of the utility and what commercial systems are bid and at what cost will determine what is best. It may be that existing commercial communications arrangements for the utility WAN are so favorable that a non-'best' engineering solution is actually the 'best' choice for utility customers because it's the lowest cost.

5. Access to Price information:

- a. How should customers be provided direct access to pricing information? [examples, website access, HAN to an in-home display or other devices]

Answer: Price (including such prices as day ahead) is easily communicated to smart meters and this can be further communicated to in-home displays, web portals, and smart thermostats. Bear in mind that the bill is determined by the accurate metering usage information communicated back to the utility and as verified by them. Customers need to understand that they are given raw data for helping controlling their energy use, not for determining their own bills.

- b. Should the Commission require the meter to communicate price information, or should this information be provided over another communication medium?

Answer: The meter is easily sent the pricing information.

- c. What pricing information should the Commission require to be provided? [examples, RTP, Day ahead prices, default service rates]

Answer: This depends on what pricing options end up in rules and what customers need it for (like demand response). It wouldn't seem to be reasonable to send a text message via the meter that would be the actual tariff, language for example. However, communicating to the customer that tomorrow will be a critical peak day, with the hourly price, would be reasonable and desirable, so customers can take action (or the price could also be communicated to the thermostat from the meter for automatic action, with the capability of manual override).

- d. Should the Commission establish minimum standards on how frequently price information should be provided? If so, what should be the minimum standard?

Answer: This would depend on the final tariffs.

- e. Should the Commission establish standard formats for presentation of price information? If so, suggest a format.

Answer: There are a number of formats from a number of suppliers. The 'orb' changes color with price changes, in-home displays often look like automobile 'dashboards' plus colors and numerical values, some in-home displays mimic a spinning mechanical meter where fast rotation shows high usage, on a webpage any of these and more could be displayed. So there is no 'best for everybody' alternative. Texas requires Spanish and English if language is used.

6. Automatic Control:

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

Answer: AMI communications can control smart thermostats and direct load control switches. Smart thermostats typically give consumers more in-home control, as manual overrides are typically provided and the customer can set its own comfort parameters. Direct load control switches for air conditioning are typically outdoors so they are more readily installed and serviced. Decisions should be based on utility and customer preference.

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

Answer: As indicated above, pricing signals (or emergency load reductions) signals may be sent to the meter, which will be communicated to in-home devices for indication and actuation. One benefit of this approach is the two-way communications back of actuation is provided so you know something happened which provides verification that the device operated is still operable. Besides the actuation knowledge, there is also the interval data, a second verification.

- c. 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?

Answer: Automated controls may be via the AMI local area network communications, and/or via standardized protocols such as ZigBee. As indicated above, there is a very significant national effort underway to establish a slate of protocols that would control the 'smart grid'. It would not be productive (or could be counter productive) for Pennsylvania to decide on solutions that would end at the state line.

- d. What energy consuming customer 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?

Answer: There is a discussion above of residential electric use (HVAC and electric water heater loads). Smart thermostats also readily control gas furnace consumption for the winter, as well. The 'appliance' controls for small commercial and residential are often the same.

Large commercial and industrial controls need to be addressed very differently. Such loads are typically already optimally controlled by computers with master controllers and distributed digital logic. There would need to be intensive discussions by electric suppliers and such customers as to what degree (or if any) 'smart grid' functionality would cross the premise boundary.

7. Smart Metering Acceleration:

- a. To the extent permissible under the law, should the Commission provide an incentive to EDCs to accelerate their smart meter deployment by giving a credit towards the required Energy Efficiency and Conservation Goals? If so, how should such credit be determined?

8. Cost Recovery:

- a. Should the Commission establish a standard format for providing the various components of the capital and operating costs and benefits of these smart metering systems to facilitate the comparison of the EDC plans? If so, please provide a suggested standard format.

**ELSTER COMMENTS TO THE STAFF IMPLEMENTATION ORDER WORKING
GROUP DRAFT (ATTACHEMENT B)**

IMPLEMENTATION ORDER

Elster has no comments on the Implementation Order at this time, but reserves the right to file reply comments regarding any initial comments that may address this Implementation Order.

A. Plan Approval Process

B. Smart Meter Deployment

I Network Development and Installation Grace Period

2 Customer Request

3 New Construction

4. System-Wide Deployment

C. Smart Meter Capabilities

- Minimum Functionality Requirements

D. Access to smart meters and data

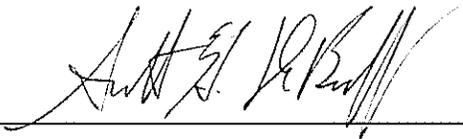
E. EDC Cost Recovery

1. Cost Recovery Mechanism

2. Allocation of Costs to Customer Classes

WHEREFORE, Elster Integrated Solutions respectfully requests that the Pennsylvania Public Utility Commission consider its Comments in the above captioned response. We look forward to participating in the process going forward and contributing our experience and expertise.

Respectfully submitted,

By: _____

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DATED: APRIL 20, 2009

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SMART METER TECHNOLOGY
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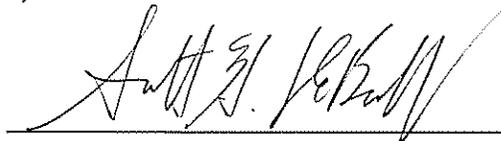
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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing "COMMENTS ON BEHALF OF ELSTER INTEGRATED SOLUTIONS" was served on the Commonwealth of Pennsylvania Public Utility Commission along with the service list on this 20th day of April, 2009.

Dated: April 20, 2009

By:



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