Pennsylvania Public Utility Commission
Attn: Secretary
P.O. Box 3265
Harrisburg, PA 17105
Re: M-2009-2092655

April 17, 2009

Garrett Johnston
Grid Solutions Architect
Trilliant Inc.
206 Highlands Dr.
Woodstock, GA 30188
(650) 204-5279 (office)
(678) 477-6919 (mobile)
Garrett.johnston@trilliantinc.com

To Whom It May Concern:

We appreciate very much for the opportunity to provide comments to the Pennsylvania Public Utilities Commission's Smart Meter Procurement and Installation Plans Docket M-2009-2092655.

In general, Trilliant suggests that the Commission adopts open standards and flexible requirements that would enable utilities to empower customers to control their energy usage by providing cost-effective current and future conservation applications. By adhering to common industry and communications standards, the Commission can ensure that Pennsylvania consumers will have continual access to a wide variety of currently available and evolving energy conservation opportunities and options. The Commission should focus on adopting general functionality requirements and allow the market to develop technical solutions to meet consumers' requirements.

Enclosed you will find our responses to specific questions.

Thank you for your time. We look forward to working on this important initiative. Please don't hesitate to reach out to me if you have any questions or comments.

Sincerely,

Garrett Johnston

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

In general, Trilliant suggests that the Pennsylvania Public Utilities Commission adopts open standards and flexible requirements that would enable utilities to empower customers to control their energy usage by providing cost-effective current and future conservation applications. By adhering to common industry standards and communications standards, the Commission can ensure that Pennsylvania consumers will have continual access to a wide variety of currently available and evolving energy conservation opportunities and options. The Commission should focus on adopting general functionality requirements and allow the market to develop technical solutions to meet those requirements.

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.

Response: Yes, to ensure plug and play capabilities and scalability, it should be required that all meters meet ANSI C12.18 and C12.19 standards. Similarly, communications networks should meet common standards including IEEE 802.15.4 and ANSI C12.19/22 standards.

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?

Response: Protocols should be focused at a high-level such as the IEEE 802.15.4 standards. Specific HAN protocols are not necessary and given the immaturity of available HAN standards, may hamper the development of effective and innovative solutions in this market.

b. Should smart metering information be able 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?

Response: Smart metering information should be available to consumers through common internet browsers (e.g., Explorer) through a Web site that communicates the information as well as in-home display units (including thermostats) that have direct communications to meter.

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]

Response: The overall AMI network must be able to communicate with in-home equipment to transfer current pricing and usage information. Another possibility is that one in-home device can communicate with other home devices; for example, an in-home display could communicate with the thermostat.

3. Utility usage data and meter access:

a. What usage data should the utility acquire through the smart metering system?

Response: The utility should be required to acquire load-profile data to support TOU billing, instantaneous energy usage, tampering indications, and outage notification and restoration information.

b. Should the Commission establish minimum standards on how often the utility should acquire the usage from the meter?

Response: The collection of data should be based on the application; however, all installed systems should have the capability to provide the utility with usage information every hour from all meters.

c. Should the Commission establish minimum data intervals? If so, what should that be? [Examples: 15 minute, 30 minute, 1 hr]

Response: The collection of data should be based on the application; however, all installed systems should be configurable to intervals between 5 and 60 minutes.

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?

Response: The Commission should require that usage data for residential customers be supplied at least once daily to all required participants including EDCs, CSPs/EGSs and customers.

e. Should this usage data be validated first?

Response: Yes, validation should be done automatically and relatively quickly by a meter data management or other information system.

f. Should the Commission establish a common Validation, Error Detection and Editing (VEE) protocol? If so, what should that be?

Response: No comment

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?

Response: No comment

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

Response: Customers should be provided direct access to usage information, but utilities should decide how best to present that information to customers – e.g., whether over the Internet, in-home display, etc.

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?

Response: Like the meter, all in-home equipment should have two-way capabilities, though there is no need to establish standard protocols for providing direct access to usage to customers. At this early stage in this maturing market, imposing standards may unnecessarily hamper development of valuable solutions. As stated previously, there is no need for in-home equipment to communicate through the meter because the in-home equipment can communicate just as effectively – and less problematically – when communicating directly with the local-area network (LAN) that also reads the meter.

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 meter facilities?

Response: To avoid potential security risks, direct access to the meter by third parties should be provided through a web server managed by the EDC. Any standards developed to support this direct access should strongly focus on data security.

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 requirement and or standards to facilitate this access?

Response: No comment.

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.

Response: No comment.

4. Meter to EDC Communications

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

Response: Yes, all communications from the meter to the grid should meet standard protocol requirements, such as the standards ANSI has already developed – (C12.19/22). ANSI C12.22 is an application layer protocol, but the actual communications which occurs below the application level should vary by solution; at this stage of industry development, it may be unwise to rigidly require a specific wireless standard.

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 the Pennsylvania customers' communications requirements? If so, what additional protocols should be adopted?

Response: Many different protocols effectively address this problem; restricting the list of protocols would unnecessarily hamper the marketplace.

c. What bidirectional communications medium [Example: broadband over powerline, cellular, phone lines, RF] are least cost? What are the pros and cons of each?

Response: RF Mesh provides the best and most cost-effective solution for utility current and future needs both for local- and wide-area networks. Other communications including cellular, phone lines and BPL can also provide effective WAN solutions based on the various requirements of each system, but they are generally not cost-effective for NAN (neighborhood area network) solutions.

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]

Response: Like the meter, all in-home equipment should have two-way capabilities, though there is no need to establish standard protocols for the presentation of pricing information to customers. Data presentment options should be left to the individual EDC.

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

Response: The Commission should only specify that price information be made available to the consumer but should not specify that the information be communicated via the meter. There is no need to establish standard protocols for the presentation of pricing information to customers. Data presentment options should be left to the individual EDC.

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

Response: The pricing information should be left to the EDC: current and impending rates (i.e., the next rate to take effect for that customer) should be available at a minimum.

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

Response: The pricing information should reflect current and impending rates (such as the next rate to take effect for that customer).

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

Response: There is no need to establish standard formats for the presentation of pricing information to customers. Data presentment options should be left to each individual EDC.

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?

Response: It is not "smart meters", but rather intelligent communications networks (Smart Grid Networks), that can support load shedding by communicating and enabling automatic control of responses to peak or dynamic pricing.

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

Response: Smart Grid networks provide two-way communications to premise equipment such as Thermostats and Load Control Switches and smart meters to enable applications to control and monitor loads while providing the consumer with the ability to override EDC load control events.

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?

Response: Many protocols are possible and to limit them would hamper the marketplace.

d. 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?

Response: Pool pumps, water heaters, HV/AC, thermostats are among the devices that can be controlled. However, control of these assets is independent of the communications medium and protocol as long the communications medium provides sufficient bandwidth.

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?

Response: Yes. Utilities should be encouraged to drive innovation and solutions that meet the need of consumers.

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.

Response: Yes, the standard format should include costs categorized by benefit:

- Operational (e.g., increased information about transformer ratings vs. actual load)
- Customer (e.g., outage restoration and detection)
- Wholesale energy market (e.g., decreased cost of electricity during peak pricing)
- Society (e.g., decreased carbon footprint, etc.)