

Elster July 12, 2010 Reply to DOE Request for Information of May 11, 2010 regarding Data Privacy

The DOE questions are restated followed by an answer. Please note that this matter is also related to the May 11, 2010 RFI on needs for utility communications. If data is provided to third parties there is a data processing and communications cost that depends on how many parties data is provided to and by how often data is communicated. These costs are minimized if an in-home display and/or smart thermostat are provided data directly from a smart meter.

(1) Q. Who owns energy consumption data?

A. Typically by state law the consumer owns the data.

(2) Q. Who should be entitled to privacy protections relating to energy information?

A. The consumer.

(3) Q. What, if any, privacy practices should be implemented in protecting energy information?

A. International, federal, and state law are sources of requirements for data protection, as indicated in the RFI. Generally, the information should be used for limited purposes, be kept securely, and only disseminated to those who have a legitimate need for it; certain types of information, including customer financial information, typically have stringent specific requirements. The degree of protection may be less if a customer is given the choice to opt into a program, is provided information on the ramifications of opting in, and chooses to do so. This matter will need to be considered in program design.

(4) Q. Should consumers be able to opt in/opt out of smart meter deployment or have control over what information is shared with utilities or third parties?

A. This is a two part question and each part will be addressed separately.

On the matter of opting in or out of a smart meter deployment, there is the question of the value provided to the customers as a whole; and the question of what value individual customers may receive, in addition to what benefits all consumers receive. For large benefits to all customers to accrue (such as lowering peak demand enough to defer generation and/or transmission investments) there needs to be a large enough smart meter deployment and effective demand response available from time based rates and/or direct load control. More benefits accrue to individual customers who reduce peak demand, as they get the system peak load reduction capacity savings everyone gets plus savings from reduced energy consumption at peak rates.

With respect to control of information to third parties there needs to be a definition of what the data is; the North American Energy Standards Board (NAESB) has an effort underway with a standard promised by 2010 year end on this. The NAESB effort is part of the NIST Interoperability standards called for by The Energy Independence and Security Act of 2007 and therefore may have significant standing.

- (5) (Q) What mechanisms should be made available to consumers to report concerns or problems with the smart meters?

(A) Customers would logically first discuss the perceived problem(s) with the utility and the retail electric provider, if different from the utility. Where these entities' opinions differ, several root causes may be possible: there may be a metering problem, or there may be a rate issue, or there may be a consumption issue change (for example, especially hot weather), or there may be a lack of customer understanding. If a satisfactory resolution is not reached, then a state regulatory utility commission could be involved, if applicable. Elster meters are fully auditable, so it is easy to determine if there is anything amiss with the metering data.

- (6) (Q) How do policies and practices address the needs of different communities, especially low-income rate payers or consumers with low literacy or limited access to broadband technologies?

(A) If in home displays and/or smart thermostats are used, there is no need for the customer to access broadband data. The device(s) may be read directly. Some in home displays change color for different rate schedules (such as red for highest peaks), which is easy to understand. Detailed studies show that all rate classes, with one exception, save money if smart meters and time of use rates are in place. The exception is low income, high use (low income, low use customers typically save money). Rather than penalizing all rate classes by failing to deploy smart meters, it would seem that dealing with the root causes of low income, high use customers costs should be addressed.

- (7) (Q) Which, if any, international, Federal, or State data-privacy standards are most relevant to Smart-Grid development, deployment, and implementation?

(A) It would seem that evaluating what privacy standards are already in place for the data communications (such as those provided by commercial communications providers) against the NAESB data definition (when available) would be a reasonable start. The cybersecurity efforts underway as part of the NIST standards (and numerous other) efforts would provide a high degree of security, particularly as they address physical security, role based access, and other issues that are also are part of customer privacy protection requirements.

- (8) (Q) Which of the potentially relevant data privacy standards are best suited to provide a framework that will provide opportunities to experiment, rewards for successful innovators, and flexible protections that can accommodate widely varying reasonable consumer expectations?
- (A) Since they must recognize differing expectations worldwide, possibly international standards would be a good starting point. Political jurisdictions may choose and have chosen to be more restrictive (for example, California), as they deem appropriate.
- (9) (Q) Because access and privacy are complementary goods, consumers are likely to have widely varying preferences about how closely they want to control and monitor third-party access to their energy information: what mechanisms exist that would empower consumers to make a range of reasonable choices when balancing the potential benefits and detriments of both privacy and access?
- (A) In existing typical utility programs the company provides mailings and websites where the programs are described with alternatives and associated benefits. Customers are given choices and they must make choices in writing.
- (10) (Q) What security architecture provisions should be built into Smart Grid technologies to protect consumer privacy?
- (A) Adequate security may be achieved for many different system architectures. There is no one size fits all detailed security scheme that will be unchanged over time. What matters is defense in depth that may be updated as threats change over time. Elster systems include numerous protection levels to, among other things, provide protection against reverse engineering of devices, endpoint behavior monitoring, securing the communications data above the level incorporated by the communications provider, encryption of communications, control of keying, role based access; and to upgrade capabilities, provision of secure remote over the air (OTA) firmware upgrades. Elster customers have conducted OTA firmware upgrades of hundreds of thousands of Elster meters without failure.
- (11) (Q) How can DOE best implement its mission and duties in the Smart Grid while respecting the jurisdiction and expertise of other Federal entities, states and localities?
- (A) Since DOE's role is more of a facilitator this would seem to be more of a problem for Federal regulatory agencies than for DOE. The Federal government should facilitate development of national product and system technical performance standards (as is NIST on Interoperability), as well as a policy framework for regulation.
- (12) (Q) When, and through what mechanisms, should authorized agents of Federal, State, or local governments gain access to energy consumption data?

(A) A common principle of privacy protection is that data used to compile statistics should be confidential when in a raw form that can be tied to specific customers, however once the statistics are compiled they may be published. Publishing such data could be a useful DOE activity to arrive at lessons learned that could be used to improve the customer experience going forward.

- (13) (Q) What third parties, if any, should have access to energy information? How should interested third-parties be able to gain access to energy consumption data, and what standards, guidelines, or practices might best assist third parties in handling and protecting this data?

(A) Third parties could include, for example, retail energy providers and/or demand response service providers. Some providers could control sufficient power supply or aggregated demand response such that they might be subject to possible FERC regulation. Third parties should have the same privacy protection requirements as regulated utilities. Otherwise the process discriminates against utilities, which typically have to grant non-discriminatory access to third parties.

- (14) (Q) What forms of energy information should consumers or third parties have access to?

(A) Commercial electric, gas, and water metering data is available in standard form data tables in American National Standard ANSI C12.19-2008 *Utility Industry End Use Data Tables*. Elster meters and those from competitors comply with this standard. So the meter data is already machine readable. In addition, there is an effort underway in the NIST Interoperability standards process to make this data more readable by third parties.

For information to be useful it should be actionable, that is the customer should be able to do something to reduce costs, save energy, reduce peak load, and so on. Elster meters communicate with in home displays provided by others, that provide information, for example, on present demand and usage, time based rates (which can be several per day), usage for the previous 30 days, and present costs and costs over some selected time period (it should be noted that although this data is very accurate, the bill is based on verified information from the electricity provider). Some of these in home displays provide a feature to help customers understand the demand from, for example, appliances. Many of these in home displays show different colors at different rate tiers so high priced energy use periods are easily determined.

There are also compatible smart thermostats that may be set to display usage information, as well as to automatically reset cooling system set points based on customer selected comfort versus cost tradeoffs.

The same data could be made available to third parties so they could offer complementary products and services. The information unique to the customer would have to comply with applicable privacy laws.

- (15) (Q) What types of personal energy information should consumers have access to in real-time, or near real-time?

(A) Please see the reply to question 14, above.

- (16) (Q) What steps have the states taken to implement Smart Grid privacy, data collection, and third party use of information policies?

(A) Perhaps an organization such as the National Association of Regulatory Utility Commissioners (NARUC) could provide this information in tabular form. If so, the information should be made publically available. Currently industry and trade associations invest significant resources in attempting to develop information on unique state requirements.

- (17) (Q) What steps have investor owned utilities, municipalities, public power entities, and electric cooperatives taken to implement Smart Grid privacy, data collection and third party use of information policies?

(A) As in the reply to question 16, when compiled this information would be very useful to the public.

- (18) (Q) Should DOE consider consumer data accessibility policies when evaluating future Smart Grid grant applications?

(A) As the DOE review already includes numerous assessments, for example, on cybersecurity, much of the basis for privacy protection is already included. One thing that Elster has noticed in assessments of smart grid grants projects is that the reviewers of the implementation plan details after project selection do not have access to the original application and the DOE applications assessment from the selection review. The process would be facilitated by making these previous assessments available to the detailed reviewers.