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10 G Street, NE, Suite 550
Washington, DC 20002

Tel: +1.202.346.3240
Fax: +1.202.346.3241

March 12, 2010

Office of Science and Technology Policy (OSTP)
Attn: Open Government Recommendations
725 17th Street
Washington, DC 20502

Introduction

The Telecommunications Industry Association (“TIA”) is pleased to provide comments responding to the Office of Science and Technology Policy’s Request for Information addressing Consumer Interface with the Smart Grid (FR. Doc 2010-2813). TIA is the leading trade association for the Information and Communications Technology (ICT) industry. With 500 member companies that manufacture or supply the ICT products and services that will make the smart grid a reality, TIA is committed to the successful and secure modernization of the Nation’s electric grid.

Widely recognized as one of the greatest technological achievements of the last century, the electric grid has reliably provided consumers with electricity in an efficient and cost-effective manner. Electric utilities and the ICT industry share a long tradition of partnering to build and maintain the communications networks contributing to the security and reliability of the grid. Advances in technology and more robust use of ICT to transform the current electric grid into a smart grid present exciting opportunities for consumers, utilities, and the United States.

TIA agrees with the Administration that modernization of the Nation’s electric grid is a vital component of the President’s comprehensive energy plan aiming to reduce US dependence on foreign oil, create jobs, and help U.S. industry compete successfully in global markets for clean energy technology. ICT or smart technology is clean energy technology, and nowhere is this more evident than in its application in the electric grid and the buildings connected to it. While the benefits of a smart grid are clear, at this early stage in its development, the policy and regulatory framework in which the grid matures will significantly impact how smart the grid can become and the benefits it can achieve in both the short and long term.

TIA stresses two main points in response to the questions in this RFI: technology neutrality and consumer access to usage and pricing data. Because of the diversity of applications and evolving nature of the smart grid, TIA emphasizes technology neutrality as the key to the successful development and deployment of smart grid infrastructure, particularly at the home-to-grid interface. Technology neutrality will lead to increased innovation in smart grid technologies, increased options for a range of customer needs and preferences, and provide a reliable and secure grid that reduces energy consumption and costs for consumers. Allowing multiple technologies to compete to achieve the goals of a smart grid will increase investment in the market, spur more innovation in products and solutions, and future proof the grid allowing it to realize its potential. At this early stage, it is impossible to predict which technology will be the most successful. TIA recommends that federal and state governments either through the regulatory or standards-setting process avoid excluding viable technologies or architectures and instead focus on coexistence and interoperability of a group of viable technologies. To open the

door to innovation in technologies at the home-to-grid interface, it is imperative that consumers have access to usage and pricing data.

1. Should the smart meter serve as the primary gateway for residential energy usage data, price data, and demand response signals? What are the most important factors in making this assessment, and how might those factors change over time?

Multiple technologies and implementation options exist that work in cooperation or independent of smart meters to provide consumers with the data and tools they need to manage their energy use. A primary gateway should not be designated at this stage of the development of the smart grid. While smart meters are effective but not exclusive technologies for relaying energy usage information and demand response for utilities, the door should remain open for other network architectures and technologies to compete in this space. An open smart grid market will be the most effective forum for assessing the advantages and disadvantages of competing technologies.

Factors that should be taken into account in establishing an open smart grid market and providing its benefits to consumers include: the accessibility and frequency of usage and pricing data, innovation in how consumers access and make use of data, and technology refresh cycles.

- **Accessibility of Usage Data**—Providing consumers with access and control of their data is critical in realizing the benefits of a smart grid regardless of the technology or architecture deployed. Consumer access to data will expand the market and expand choices for consumers.
- **Innovation**—Innovation will result from increased investment and competition in the smart grid market.
- **Technology Refresh Cycles**—Utilities typically have much longer technology refresh cycles than consumer electronics. By allowing multiple technologies to compete, technologies will improve, and consumers will be able to access products and solutions best-suited to their needs and preferences to manage their energy usage.

2. Should a data gateway other than the smart meter be used for all or a subset of the data described in question 1?

Home Energy Management Systems and Internet based energy management services should also be considered as viable data gateways. A Home Energy Management System enabled to transfer data from the smart meter can collect consumption data from devices in the home, receive pricing signals from the utility and implement efficiency measures automatically based on a customer's specified preferences. This will allow for innovation on both sides of the smart meter, maintain privacy and ownership of customer usage data, and increase network security by providing a firewall between consumer and utility data.

3. If the smart meter, via the utility network, is the primary gateway for the data described in question 1, will consumers and their authorized third party service providers be able to access the data easily and in real time?

A network architecture using the smart meter as the primary gateway has historically created obstacles for consumers or authorized third party service providers to access energy consumption data. State Public Utility Commissions are currently assessing requirements for utilities to provide access to energy usage and pricing data and protect the privacy of the consumer. For the smart grid to work effectively,

consumers need access to the data and utilities need to be able to recover costs associated with providing the information.

4. Who owns the home energy usage data? Should individual consumers and their authorized third-party service providers have the right to access energy usage data directly from the meter?

Consumers should have the right to access or easily authorize access to the data to third-party service providers.

5. How are low-income consumers best served by home-to-grid technology?

As the ICT industry has witnessed with the development of other technologies, low-income consumers will be best served through a regulatory environment that encourages innovation and competition, which brings down costs making technologies accessible to low-income consumers. Technological innovation throughout the ICT sector is improving performance and decreasing cost of deployment for smart grid applications. As initial costs could make home-to-grid technologies cost-prohibitive to some low-income consumers, the government could provide incentives to assist with the purchase of smart appliances and energy management systems.

6. What alternative architectures involving real-time (or near-real-time) electricity usage and price data are there that could support open innovation in home energy services?

Alternative architectures could include a variety of combinations of smart meters, home energy management systems, Internet-based energy management services and other methods to support open innovation. At this stage, technology neutrality, flexibility in standard-setting and use of open standards and protocols are key to the development of the smart grid.

7. Some appliance manufacturers have announced plans to market Smart Grid enabled appliances in late 2011 provided that appropriate communication standards are defined in 2010. What standard data communications interfaces(s) should be supported by appliances and the smart meter or data gateway so that appliance manufacturers can cost-effectively produce smart appliances that can communicate with the Smart Grid anywhere in the nation? How can communication between smart appliances and the Smart Grid be made “plug and play” for consumers who do not have the skills or means to configure data networks? If gateways or adapters are needed, who should pay for them: the utility or the consumer?

Coexistence and interoperability are critical for communications interfaces for the Smart Grid. Industry standards should be selected that avoid interference and allow multiple technologies to compete.

TIA recommends the use of Internet Protocol (IP) as an end-to-end network layer for Smart Grid communications where feasible. IP has many qualities ideal for the development of the smart grid:

- IP is secure with a proven and mature system of cybersecurity tools and applications.
- IP is interoperable, which minimizes costs and discourages technology silos.
- IP is reliable and self-healing as the technology will automatically avoid failed transmission links to ensure delivery of communications.
- IP is scalable and flexible allowing for loose coupling between the physical communications network and the applications on the network regardless of the underlying physical infrastructure.