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November 9, 2009

Dr. George W. Arnold
National Coordinator, Smart Grid Interoperability
National Institute of Standards
100 Bureau Drive
Stop 8100
Gaithersburg, MD 20899-8100

Re: General Comments NIST Framework and Roadmap for Smart Grid Interoperability Standards Release 1.0 (Draft) in Docket No. 0909291327-91328-01

Dear Dr. Arnold:

The Alliance for Telecommunications Industry Solutions (ATIS) appreciates the opportunity to offer comments on the draft NIST Framework and Roadmap for Smart Grid Interoperability Standards Release 1.0 (Draft) (NIST Smart Grid Standards Framework). ATIS was pleased to participate over this past summer in NIST's workshops aimed at developing the roadmap for Smart Grid standards, and to be named as a collaborator in Section 5.10 Guidelines for the Use of IP Protocol Suite in the Smart Grid and Section 5.11 Guidelines for the Use of Wireless Communications.

ATIS takes seriously the critical role that standards, namely information and communication standards, play in advancing technological efficiency and economic growth through the development of reliable, interoperable applications and devices. ATIS strongly supports NIST's efforts to ensure that the proper building blocks and technical standards are in place in order to achieve the interoperability needed for Smart Grid devices and systems as mandated by the Energy Independence and Security Act of 2007 (EISA).¹

A. Background

ATIS is a global standards development and technical planning organization that leads, develops and promotes worldwide technical and operations standards for information, entertainment and communications technologies using a pragmatic, flexible and open approach. Industry professionals from more than 250 communications companies in the information and communications technology (ICT) industry actively participate in ATIS' 18 open industry forums.

¹ Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 STAT. 1492 (2007).

ATIS' membership spans all segments of the ICT industry, including local exchange carriers, interexchange carriers, wireless equipment manufacturers, competitive local exchange carriers, data local exchange carriers, wireless service providers, providers of commercial mobile radio services, broadband providers, software developers, consumer electronics vendors, digital rights management companies, central authentication service companies and internet service providers. ATIS members include key innovators of wireless technologies and services who look to ATIS for the development of the technical specifications that will speed the new products and services to market.

ATIS' industry committees and forums develop technical specifications, standards and best practices that focus on issues ranging from the fundamental elements of offering communications services such as ordering and billing, to network security, reliability and interoperability of current and next generation technologies, to seamless delivery of converged services such as IPTV over multimedia platforms.

B. Overall Role of the Standards in Advancing Technology Development

ATIS believes that standards development plays a central role in advancing technology from the research and development stage, to production, to product launch and eventually to market. Standards impact virtually all products and services used or traded in the U.S. and are particularly important in the development of end-to-end, interoperable communications systems and services.

ATIS notes that there is well-established policy that the government should use industry-developed standards. The National Technology Transfer and Advancement Act of 1995, Public Law 104-113 (NTTAA), for example, directs federal government agencies to use, wherever feasible, standards and conformity assessment solutions developed or adopted by private, voluntary consensus standards bodies in lieu of developing government-unique standards or regulations. Additionally, the Office of Management and Budget (OMB) Circular A-119, Federal Participation in the Development and Use of Voluntary Consensus Standards in Conformity Assessment Activities, encourages the government to work with industry to develop standards and promotes close interaction and cooperation between the public and private sectors in the development of standards.

ATIS is pleased to note that several government agencies, including NIST and the National Telecommunications and Information Administration, have participated in its voluntary consensus-based standards development process. These standards address a broad range of issues, including security, lawful intercept, wireless, and quality of service. ATIS believes that governmental participation in the development of voluntary industry standards related to Smart Grid applications would be appropriate and effective in ensuring that important policy goals are achieved.

C. The Role of the Standards in Advancing Smart Grid Technology

As mentioned, ATIS appreciates NIST's acknowledgement of the need to have robust standards supporting Smart Grid technology. In this regard, ATIS believes that existing communications

standards and technologies are well suited to handle Smart Grid applications. As illustrated below, the work already accomplished and currently being performed by the industry in ATIS committees and forums is essential to various areas impacting the Smart Grid technology including time synchronization, advanced wireless communications, and specifications for IP Protocol.

Time Synchronization. The ATIS Optical Transport and Synchronization Committee (OPTXS) develops standards that focus on telecommunication equipment that transport voice, data, and video over copper and fiber and its OPTXS-Synchronization (SYNC) Subcommittee concentrates on the synchronization aspects including accurate generation and distribution of timing (time/frequency) signals. OPTXS-SYNC focuses on those functions and characteristics necessary to define and establish synchronization aspects in communications networks and also on areas concerned with network synchronization including phase/time characteristics. This work is supported by theoretical, analytical and empirical investigations to ensure that standards and reports meet the highest norms of technical integrity and completeness.

ATIS notes that Section 5.8 of the NIST Smart Grid Standards Framework is dedicated to time synchronization and specifically focuses on the use of a common format and common meanings for time data so that applications are interoperable. The NIST Smart Grid Standards Framework identifies IEEE 1588 as “a key element to achieving synchronization.” While IEEE 1588 is an important time synchronization protocol standard, OPTXS-SYNC cautions that IEEE 1588 should not be viewed as the ***guarantor*** of (precision) time synchronization. There are numerous network issues that need to be considered in order to achieve the desired time synchronization performance required by the client application. Specifically, the very transport of IEEE 1588 packet-based information over any communications network plays a significant role in its ability to deliver accurate time information to the end application.

Moreover, ATIS wants to make NIST aware of other standards that may help to address the notion of a telecommunications profile for IEEE 1588. For instance, there is currently work underway in Study Group 15 (SG15) of the International Telecommunication Union’s Telecommunication Standardization Sector (ITU-T) that is focused on generating an IEEE 1588 telecommunications profile suitable for frequency distribution over telecommunications networks. In addition, SG15 is also working to define metrics and identify network transport characteristics that influence the accuracy of IEEE 1588 and other packet-based timing protocols. OPTXS-SYNC also has been active in the general area of performance of timing over packet-switched networks and has developed a technical report, ATIS-0900001.2007 *Synchronization of Packet Networks*, which describes different approaches to deliver synchronization for end applications within packet networks. OPTXS-SYNC believes that performance of time synchronization over packet-switched communication networks plays an extremely important role in the Smart Grid applications and technology.

Given ATIS OPTXS-SYNC’s subject matter expertise in identifying and analyzing issues with time synchronization over communication networks, OPTXS-SYNC would welcome the opportunity to work collaboratively with NIST and the other designated standard development organizations on a standards-based approach for time synchronization that will support interoperability and facilitate Smart Grid applications.

Advanced Wireless Communications. As noted above, ATIS has been named as a collaborator in Section 5.11 Guidelines for the Use of Wireless Communications. Relevant ATIS work pertaining to this issue takes place in the ATIS Wireless Technologies and Systems Committee (WTSC) and in ATIS' role as the North American Organizational Partner within the 3rd Generation Partnership Project (3GPP).

ATIS' WTSC develops standards and technical reports and transposes specifications related to 2G, 3G, and evolved 3G wireless services and systems, as well as those for Wireless Wideband Internet Access systems. ATIS also plays a leading role in advancing the development and use of Long-Term Evolution (LTE) wireless technology, a technology being developed by ATIS through its participation in the 3GPP. LTE is an advanced wireless technology that is designed to increase the capacity and speed of mobile telephone networks. ATIS strongly believes that LTE deployments will bring greater wireless capabilities to applications and services that would touch upon and improve the daily lives of consumers. ATIS notes that existing wireless technologies and their evolution to LTE will enable Smart Grid technologies and applications and be beneficial in helping to achieve the energy efficiency goals noted in EISA.

ATIS notes there are three technical specifications that address the machine to machine optimization of data flow that may be of particular applicability to the implementation of Smart Grids. These specifications include the: *Study of Facilitating Machine to Machine Communications in 3GPP Systems* (TR 22.868 Rel 8), which was completed in December 2008; *Feasibility Study on Remote Management of USIM Applications on M2M Equipment* (TR 33.812 Rel 9), which is scheduled for release December 2009; and *Service Requirements for Machine-Type Communications* (TS 22.368 Rel 10), which is currently under development. Specific machine to machine optimizations being studied by 3GPP include optimizing: address space of devices (currently limited to 14 digit IMSI); low mobility devices (moves less than 1 time/month); time controlled devices; packet only devices; grouping of devices (single subscriber, multiple devices); support of originating call only devices; high availability devices; support theft/vandalism monitoring; and USIM-less devices.

Specifications of IP Protocol. ATIS has also been named as a collaborator in Section 5.10 Guidelines for the Use of IP Protocol Suite in the Smart Grid. ATIS' work on this issue takes place primarily within its Packet Technologies and Systems Committee (PTSC) and Wireless Technologies and Systems Committee (WTSC).

ATIS' PTSC develops standards, technical specifications and technical reports in support of IP-based services for evolving packet architectures and applications for enabling signaling protocols, and providing the user-to-network (UNI) and network-to-network interface (NNI) infrastructure that allows systems to interoperate and services to be provided over packet-switched networks. In addition, the PTSC has established a Next Generation Carrier Interconnect (NG-CI) Task Force to develop an IP network to network interconnection guideline based on ATIS standards that will provide physical configuration, protocol suite profile, operational information to be exchanged between carriers, and test suites in order to support conformance and interoperability testing. ATIS WTSC works with 3GPP to develop standards related to cellular systems and mobility for the transmission of IP protocols. Interoperation and conformance testing is also addressed by ATIS WTSC and 3GPP.

Conclusion

ATIS believes that existing communications standards and technologies are well suited to handle Smart Grid applications. ATIS appreciates the opportunity to provide feedback and help frame the standards that will eventually support and facilitate the implementation of Smart Grid applications.

Respectfully submitted,

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