July 12, 2010

Via Federal eRulemaking Portal
U.S. Department of Energy
Office of the General Counsel
1000 Independence Avenue, SW
Room 6A245
Washington, DC 20585

Re: *NBP RFI: Communications Requirements*

Dear Ms. McLaughlin:

CTIA – The Wireless Association® ("CTIA")[1] submits this response to the Department of Energy's ("DOE") Request for Information ("RFI") regarding the communications requirements of utilities pursuant to the National Broadband Plan.[2] Wireless communications are a critical component of "Smart Grids"[3] and commercial wireless networks can readily satisfy the communications requirements of Smart Grid applications. As CTIA explains below, (1) commercial wireless solutions are already meeting communications needs to implement the Smart Grid with both utility network and consumer applications; (2) commercial wireless networks' ubiquity, security and reliability support the operational requirements of Smart Grid applications and will facilitate consumer utilization of smart grid features; and (3) the federal government should not allocate dedicated Smart Grid spectrum, but should focus on efficiently utilizing existing commercial wireless networks.

I. INTRODUCTION

The National Broadband Plan, prepared by the Federal Communications Commission ("FCC") at the direction of Congress, recommended that the DOE, in collaboration with the FCC, "conduct a thorough study of the communications

[1] CTIA – The Wireless Association® is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the organization covers Commercial Mobile Radio Service ("CMRS") providers and manufacturers, including cellular Advanced Wireless Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of wireless data services and products.

[2] Department of Energy, Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy, Request for Information, 75 Fed. Reg. 26206 (May 11, 2010) ("RFI").

[3] Smart Grids refer to the integration of information and communication applications with the electric power grid in order to advance important public policy objectives, such as energy independence and efficiency.

requirements of electric utilities, including, but not limited to, the requirements of the Smart Grid."[4] This study is essential because, as the RFI observed, "understanding the evolving communications requirements of electric utilities and other energy infrastructure entities will help in developing informed Smart Grid policies for the nation."[5]

Smart Grid implementation has the potential to bring enormous benefits to the American public in areas such as improved reliability and power quality, reduction in peak demand, reduction in transmission congestion costs, increased energy efficiency, and the ability to increase reliance on renewable energy. President Obama has stated that the implementation of Smart Grids and development of "Smart Grid technology will:

- Create tens of thousands of jobs.
- Reduce power outages that cost American consumers $150 billion a year--every man, woman and child in the United States will save about $500 each year.
- Allow consumers to cut their electricity bills through 'smart meters.'
- Put Americans on the path to generating 20 percent or more of our energy from renewable sources by 2020."[6]

The DOE has correctly noted that there is no "one-size-fits-all" solution for Smart Grid implementation and that, ultimately, Smart Grids will be comprised of "several vast, developing, and interrelated systems."[7] Nevertheless, as the RFI properly recognizes, integrated two-way, wireless communications have been identified as an essential component of Smart Grid implementation because such communications make possible the creation of an interactive, real time infrastructure.[8] For example, the fact that a smart meter product that relies on commercial wireless networks won the Utilities Telecom Council Best Smart Meter Award demonstrates commercial networks' capability for carrying highly sensitive data over secure networks.

It has been estimated that it may cost $1.5 trillion to upgrade the existing electric power distribution network into a true Smart Grid by 2030.[9] Given the

---

[4] RFI at 26207.

[5] *Id.*

[6] President Barrack Obama, Remarks at the DeSoto Next Generation Solar Energy Center in Arcadia, Fla. (Oct. 27, 2009), *available at:* http://www.whitehouse.gov/blog/2009/10/27/smart-grid-creating-jobs-saving-energy-and-cutting-electric-bills (last visited July 12, 2010).

[7] *See* RFI at 26207.

[8] *Id.*

[9] *See* Smart Grid System Report at viii (DOE, July 2009) (citing estimates from the Brattle Group).

enormous expense associated with implementation of the Smart Grid, it is essential to identify cost-effective solutions whenever possible. With regard to calls for dedicated Smart Grid spectrum, CTIA agrees with the National Coordinator for Smart Grid interoperability who observed that, because of the high demand for spectrum, the resource should not be used inefficiently. Commercial wireless networks provide efficient, cost-effective, ubiquitous, robust and secure communications for all elements of the Smart Grid.

DISCUSSION

I. Commercial Wireless Solutions Already Are Meeting Communications Needs to Implement the Smart Grid With Both Utility Network and Consumer Applications

The DOE recognizes that there are numerous applications that can be implemented at the consumer and utility network levels to facilitate Smart Grid implementation.[10] These applications include: "Home Area Networks (HAN); Phasor Measurements and wide area situational awareness; Substation Supervisory Control and Data Acquisition ("SCADA"); Distributed Generation Monitoring and Control; Protective Relaying; Demand Response and Pricing; and Plug-in Electrical Vehicles."[11] Commercial wireless networks can be used in conjunction with each of these applications.

At the consumer level, commercial wireless networks are being used to deliver applications that make the existing electric network more intelligent and enable consumers to take control over their utility bills. Examples include:

Ecobee's Smart Thermostat: Homeowners with this thermostat may use a smartphone to remotely adjust the thermostat's temperature, change system settings, or receive alerts.[12]

Energy UFO: This free smartphone application provides a mobile interface for devices connected to Visible Energy's power strips. The electricity used by each of the electrical outlets on the power strips is measured and logged. The information can then be viewed via smartphone. The application also allows the user to program power strip outlets to turn on and off according to a daily schedule.[13]

---

[10] *See* RFI at 26207.

[11] *Id.*

[12] *See* Press Release, Ecobee, iPhone and iPod touch Smart Thermostat Application Released by ecobee (Nov. 17, 2009), *available at:* http://www.ecobee.com/company/newsdetails/id/106 (last visited July 12, 2010).

[13] *See* Visible Energy Inc., iPhone Energy Management Application, *available at:* http://www.visiblenergy.com/products/display/iphone.html (last visited July 12, 2010).

Google PowerMeter: The Google PowerMeter is a free energy monitoring tool that uses information from utility smart meters and energy monitoring devices to provide consumers with detailed information regarding the amount of energy being consumed in their homes on a daily, weekly, or monthly basis.[14] Commercial wireless networks allow consumers to access this information wirelessly via smartphones or laptops.

Microsoft Hohm: This website allows consumers to compare their energy consumption with neighboring homes and provides information regarding steps that can be taken to improve energy efficiency.[15] Commercial wireless networks allow consumers to access this information wirelessly.

My House UI: This smartphone application allows users to control systems, such as air conditioning, heating, and lighting that are connected to in-home thermostats and outlets.[16]

Snap-Link Mobile: This smartphone application allows users to control systems, such as air conditioning, heating, and lighting that are connected to Home Automation, Inc. automation systems.[17]

Trendil Vantage Mobile: This smartphone application enables consumers to view their home energy consumption in real time, view dynamic price changes for their electricity, and control certain appliances and thermostats remotely.[18]

Commercial wireless networks also are being used to deliver a variety of Smart Grid applications to utilities over ubiquitous and secure networks. For example, T-Mobile developed a SIM card specifically designed for machine-to-machine ("M2M") applications. In addition, T-Mobile's strategic alliance with

---

[14] *See* Google Power Meter Overview, *available at:* http://www.google.com/powermeter/about/about.html (Last visited July 12, 2010).

[15] *See* Microsoft Hohm, *available at:* http://www.microsoft-hohm.com (last visited July 12, 2010).

[16] *See* Press Release, Control UI, Control UI at CEDIA 2008 (Aug. 22, 2008), *available at:* http://www.controlui.com/news.php (last visited July 12, 2009). Similar devices are available in the United Kingdom. *See* Alert Me, *available at:* http://www.alertme.com (last visited July 12, 2010).

[17] *See* Snap-Link Mobile Getting Started Guide, *available at:* http://www.homeauto.com/Downloads/Products/Snap-LinkMobile/SLMGettingStartedGuide.asp (July 12, 2010).

[18] *See* Tendril – Vantage, *available at:* http://www.tendrilinc.com/products/vantage (last visited July 12, 2010).

Echelon, a smart meter provider, integrates T-Mobile's M2M SIM with Echelon products, and transports smart meter data over T-Mobile's wireless network.[19]

AT&T entered into a similar arrangement with SmartSynch, a smart meter manufacturer that has Smart Grid solutions already deployed at more than 100 utilities in North America.[20] Data from SmartSynch's meters are carried over the AT&T wireless network.[21] The SmartSynch solution is being used for a number of Smart Grid projects, such as the Tennessee Valley Authority's distributed renewable generation program.[22]

AT&T also reached an arrangement with Cooper Power Systems ("CPS") whereby data from CPS's outage monitors and voltage sensors will be transmitted wirelessly via AT&T's network.[23] This product was recently named the Best Smart Meter/Smart Grid Product by the Utilities Telecom Council ("UTC").[24]

---

[19] *See* Ariel Schwartz, *T-Mobile Joins the Smart-Grid Wireless Network Brigade* (May 5, 2009), *available at:* http://www.fastcompany.com/blog/ariel-schwartz/sustainability/t-mobile-joins-smart-grid-wireless-network-brigade (last visited July 12, 2010).

[20] *See* Fierce Wireless, *AT&T To Offer Wireless Smart Grid Technology To Utility Companies* (March 2009), *available at:* http://www.fiercewireless.com/press-releases/t-offer-wireless-smart-grid-technology-utility-companies-0 (last visited July 12, 2010).

[21] *See* Katie Fehrenbacher, *Phone Companies Heart Smart Grid: SmartSynch, AT&T Sign Up Texas Utility* (Apr. 16, 2009), *available at:* http://earth2tech.com/2009/04/16/phone-companies-heart-smart-grid-smartsynch-att-sign-up-texas-utility (last visited July 12, 2010). Texas-New Mexico Power has already agreed to utilize this solution for 10,000 smart meters in Texas. See *id*.

22 *See* Jesse Berst, Smart *Grid Renewables: TVA Chooses SmartSynch for Ambitious New Program*, SMART GRID NEW.COM (Feb. 3, 2010), *available at:* http://www.smartgridnews.com/artman/publish/Technologies_Communications_News/Smart-Grid-Renewables-TVA-Chooses-SmartSynch-for-Ambitious-New-Program-1835.html (last visited July 12, 2010); *see also* Smart Synch, *New Mexico Power (TNMP) to Deploy 231,000 SmartSynch Residential SmartMeters throughout Texas Market* (May 27, 2010), *available at:* http://www.smartsynch.com/news/052710.htm (last visited July 12, 2010).

[23] *See* Press Release, AT&T, AT&T and Cooper Power Systems to Offer Wireless Smart Grid Sensors (June 24, 2009), *available at:* http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26874 (last visited July 12, 2010); Jeff St. John, *AT&T Links Cooper Power Systems' Smart Grid Devices*, GREENTECH GRID (June 25, 2009), *available at* http://www.greentechmedia.com/articles/read/att-links-cooper-power-systems-smart-grid-devices (last visited July 12, 2010). Under the CPS agreement, AT&T will co-sell the outage monitors and voltage sensors. *See* AT&T/Cooper Press Release at 1.

[24] *See* Utilities Telecom Council, UTC Membership Elects Officers (June 1, 2010), *available at:* http://www.utc.org/utc/utc-alert-june-1-2010 (last visited July 12, 2010) ("During UTC TELECOM 2010, UTC hosted several award opportunities. Please join us in congratulating these winners! . . . UTC Product Award Winners Best Smart Meter/Smart Grid Product/Service: Cooper Power Systems, "Smart Sensors") ("UTC News Release").

Verizon Wireless entered into agreements with Ambient and Itron, two companies that provide utilities with solutions for creating Smart Grid communication platforms and technologies. Under these agreements, which are intended to facilitate the deployment of Smart Grid projects across the country, Verizon Wireless will carry the traffic from Ambient's Smart Grid platform and Itron's mesh networks that connect smart meters.[25]

AT&T and Verizon also entered into agreements with CURRENT, a leading provider of distribution Smart Grid solutions, to deliver a unified Smart Grid solution to improve utilities' network communications, "speed integration of renewable energy sources, improve overall grid operations, and realize a secure, IP-enabled smart grid."[26] Pursuant to these agreements, CURRENT provides its intelligent sensors, which monitor distribution grid performance; its OpenGrid™ utility element management system; and its System Optimization and Reliability analytical software solutions to utilities. AT&T and Verizon then provide the underlying wireless and IP network services, managed network and security services, and advanced IT security consulting services to electric utilities.[27]

Mobile virtual network operators ("MVNOs") also have been established primarily to serve the M2M market. For example, KORE Telematics – a specialized MVNO providing M2M wireless service – serves more than 550 application providers powering diverse applications (including utility metering) over the AT&T

---

[25] *See* Transmission & Distribution World, *Verizon Wireless and Ambient Join to Offer Smart Grid Communications System* (Mar. 25, 2009), *available at:* http://tdworld.com/info_systems/vendor_updates/verizon-ambient-smart-grid-0309/ (last visited July 12, 2010); Jeff St. John, *Itron Hook Up Smart Grid Communications*, GREENTECH GRID (Apr. 1, 2009), *available at* http://www.greentechmedia.com/green-light/post/verizon-itron-hook-up-smart-grid-communications-1315 (last visited July 12, 2010).

[26] *See* Jyothi Mahalingham, CURRENT Group, Verizon Announce Joint Smart Grid Offerings, SMART GRID.TMCNET (Feb. 8, 2010), *available at* http://smart-grid.tmcnet.com/topics/smart-grid/articles/74771-current-group-verizon-announce-joint-smart-grid-offerings.htm (last visited July 12, 2010).

[27] Press Release, AT&T, AT&T Announces Smart Grid Agreement with CURRENT Group to Deliver Grid Optimization Solutions to North American Utilities (June 28, 2010) *available at:* http://www.att.com/gen/pressroom?pid=18060&cdvn=news&newsarticleid=30906&mapcode%20=enterprise (last visited July 12, 2010); Press Release, Verizon, CURRENT Group and Verizon Announce Joint Smart Grid Offering to Help Improve Efficiency and Reliability of the Electric Distribution Grid (2010), *available at:* http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20100204005513&newsLang=en (last visited July 12, 2010)

wireless network.[28] Similarly, CrossBridge Solutions, another MVNO, offers wireless utility metering services to power Smart Grid applications. CrossBridge Solutions utilizes a variety of CMRS services to serve client needs, including Sprint's CDMA/1xRTT/EV-DO wireless network and AT&T's GPRS/EDGE wireless network.[29]

Commercial wireless providers are dedicated to building upon these early successes and partnering with utilities to provide communications solutions in their Smart Grid deployments. As an example of this commitment, Verizon recently announced plans to partner with the UTC to conduct a study of the communications and information technology requirements of the nation's utilities. The study will encompass a wide range of factors that should be considered when evaluating Smart Grid technology and implementation.[30]

II. Commercial Wireless Networks Support the Operational Requirements of Smart Grid Applications

Commercial wireless networks provide ubiquitous, robust and secure solutions for all elements of the Smart Grid. As Smart Grid opportunities continue to expand, wireless carriers are continuously exploring ways to meet the needs of consumers and utilities in the Smart Grid. Leveraging these networks is efficient, cost-effective, sustainable, and benefits consumers.

As an initial matter, the U.S. Department of Commerce, National Institute of Standards and Technology ("NIST") has begun the development of a framework "that includes protocols and model standards for information management to achieve interoperability of Smart Grid devices and systems."[31] Ultimately, "hundreds of communications protocols, standard interfaces, and other widely accepted and adopted technical specifications" will need to be adopted to ensure "an advanced, secure, electric power grid with two-way communication and control capabilities."[32]

---

[28] *See* KORE Telematics, About KORE, http://www.koretelematics.com/en/corporate/index.html (last visited July 12, 2010).

[29] *See* CrossBridge Solutions, Welcome to CrossBridge Solutions, http://www.crossbridgesolutions.com (last visited July 12, 2010).

[30] Press Release, Verizon, Utilities Telecom Council and Verizon to Study Utility Communications Needs (June 17, 2010) *available at:* http://newscenter.verizon.com/press-releases/verizon/2010/utilities-telecom-council-and.html (last visited July 12, 2010).

[31] National Institute of Standards and Technology, U.S. Dept. of Commerce, NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0 (Draft), Office of the National Coordinator for Smart Grid Interoperability (Sept. 2009) ("Smart Grid Framework and Roadmap").

[32] *Id.* at 9.

As commercial wireless networks demonstrate that they satisfy these technical specifications, it is vital to recognize the role these networks should play in carrying Smart Grid communications. Based on this, it would seem to be unnecessary to develop and deploy independent, costly networks designed solely for utilities.

A. Commercial Wireless Networks are Ubiquitous

Commercial wireless networks are available nationwide. Approximately 280 million people, or 98.1 percent of the U.S. population, are served by one or more mobile broadband providers,[33] with 92 percent of the U.S. population covered by 3G services.[34] These technologies can provide download speeds of up to around 21 Mbps, which can meet the communications needs of utilities without the need of deploying a new wireless communications network dedicated solely to Smart Grid needs.

The ubiquity of commercial wireless network availability means that a wireless network dedicated solely to the Smart Grid communications needs of utilities is unnecessary for many Smart Grid communications elements. Commercial wireless carriers are continually expanding their networks to cover previously-unserved populations. Wireless carriers continue to deploy additional cell sites at a rapid pace – adding well over 51,000 additional sites between December 2006 and December 2009.[35] And the number of cell sites is likely to increase substantially as carriers continue deploying networks in the AWS-1 and 700 MHz spectrum and upgrading their existing networks to 3G and 4G technologies. Commercial network providers' considerable ongoing investments will help them expand and enhance their networks, which in turn allow them to support Smart Grid solutions.[36]

---

[33] Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services, WT Docket No. 09-66, *Fourteenth Report*, FCC 10-81 (rel. May 20, 2010).

[34] CMRS providers utilize a variety of technologies including HSDPA (High Speed Downlink Packet Access), HSUPA (High Speed Uplink Packet Access), HSPA+ (Evolved High Speed Packet Access), EV-DO and EV-DO Rev. A.

[35] *See* CTIA Semi-Annual Wireless Survey Results, Year-End 2009 Top-Line Survey Results, *available at:* http://files.ctia.org/pdf/CTIA_Survey_Year_End_2009_Graphics.pdf (last visited July 12, 2010).

[36] Additionally, a variety of other technologies and networks, such as mesh networks, broadband over powerline, and satellite networks, may be utilized to supplement in the event of small coverage gaps in existing terrestrial commercial wireless networks.

B. Commercial Wireless Networks are Secure

Commercial wireless networks offer secure communications for a number of large businesses and government entities, including the U.S. Department of the Treasury; Transportation and Security Administration; U.S. Coast Guard; U.S. Secret Service; and U.S. Immigrations and Customs Enforcement.[37] For example, the Department of Homeland Security ("DHS") awarded AT&T a $50 million contract to provide secure wireless data and voice communications for the Federal Emergency Management Agency.[38] Similarly, commercial wireless network operators can satisfy Smart Grid network security demands.

Commercial wireless carriers also have worked to develop and deploy new products designed to ensure secure communications. For example, the T-Mobile SIM card incorporated into Echelon's smart meters noted above includes security protection in the form of an encrypted key called the International Mobile Subscriber Identity ("IMSI").[39] Similarly, through its Open Development Program, Verizon Wireless certified the use of the RuggedRouter® RX1000 and RX1100 series routers on the Verizon Wireless network.[40] These routers are industrially hardened cyber security appliances, each with an integrated router, firewall, and VPN functionality, that are ideally suited for electric power utility applications such as SCADA systems.[41] Simply put, commercial wireless service providers have been operating secure networks for years and have developed the protocols and safeguards necessary to secure data transported over their networks.

The secure nature of commercial wireless networks is evident by the growing number of Advanced Metering Infrastructure ("AMI") and smart sensor deployments that rely on these networks. As noted above, commercial wireless networks have been used to carry traffic from SmartSynch and CPS smart meters. UTC recognized CPS smart meters as the Best Smart Meter/Smart Grid Product at its 2010

---

[37] *See* Homeland Security, AT&T Wireless, *available at:* http://www.wireless.att.com/businesscenter/business-programs/government/solutions/homeland-security.jsp?wtLinkName=HomelandSecurity&wtLinkLoc=LN (last visited July 12, 2010).

[38] *See* Press Release, AT&T, AT&T Government Solutions Announces $50 Million Wireless Solution Award from FEMA (Jan. 26, 2009)**,** *available at:* http://www.corp.att.com/gov/newsevents/press_releases/press_release_01_26_09.html (last visited July 12, 2010).

[39] *See* Smart Meters, T-Mobile Finds Way Into Smart Grid Industry, *available at:* http://www.smartmeters.com/the-news/515-t-mobile-finds-way-into-smart-grid-industry.html (last visited July 12, 2010).

[40] *See* Press Release, Verizon, RuggedCom RuggedRouter® Certified On The Verizon Wireless Network To Provide EV-DO Rev A Service (Aug. 27, 2009), *available at:* http://news.vzw.com/news/2009/08/pr2009-08-26a.htm l (last visited July 12, 2010).

[41] *See id.*

conference.[42] The fact that a smart meter product that relies on commercial wireless networks won the UTC Best Smart Meter Award demonstrates commercial networks' capability for carrying highly sensitive data over secure networks.

C. Commercial Wireless Networks are Highly Reliable

Commercial wireless network operators take very seriously their responsibility to provide reliable and effective communications during times of emergency and heightened demand, and recognize that network survivability is key to customers that rely on their services. Service continuity and disaster recovery are guiding principles informing carriers' decisions regarding network construction, staffing, training and technology development.

The wireless industry has been working with the federal government for years on continuity of service and survivability of broadband networks. It has also partnered with DHS on the National Infrastructure Protection Plan ("NIPP") and participated in the Communications Sector Coordinating Council ("CSCC") in developing the Communications Sector Specific Plan ("CSSP"). The CSSP is a public-private partnership designed to "'establish a single framework for protecting the Nation's critical communications infrastructure' through the establishment of 'comprehensive risk management framework that defines critical infrastructure protection roles and responsibilities for all levels of government and private industry.'"[43]

The CSSP envisions a public-private partnership "to establish a single strategic framework for protecting the Nation's critical communications infrastructure" through the establishment of "a comprehensive risk management framework that defines critical infrastructure protection roles and responsibilities for all levels of government and private industry."[44] The CSSP outlined 7 main security goals for the communications sector as follows:

- Protect the overall health of the national communications backbone.
- Rapidly reconstitute critical communications services after national and regional emergencies.
- Plan for emergencies and crises by participating in exercises and updating response and continuity of operations plans.

---

[42] *See* UTC News Release.

[43] FCC, Comments of CTIA – The Wireless Association, PS Docket No. 10-92 (June 25, 2010).

[44] *See* U.S. Dept. of Homeland Security, Communications: Critical Infrastructure and Key Resources Sector-Specific Plan as input to the National Infrastructure Protection Plan (May 2007) *available at:* http://www.dhs.gov/xlibrary/assets/nipp-ssp-communications.pdf (last visited July 12, 2010).

- Develop protocols to manage the exponential surge in utilization during an emergency situation and ensure the integrity of sector networks during and after an emergency event.
- Educate stakeholders on communications infrastructure resiliency and risk management practices in the communications sector.
- Ensure timely, relevant, and accurate threat information sharing between the law enforcement and intelligence communities and key decision-makers in the sector.
- Establish effective cross-sector coordination mechanisms to address critical interdependencies, including incident situational awareness, and cross-sector incident management.[45]

The commercial wireless industry has spent considerable time and resources creating business continuity plans and developing and strengthening its ties with federal, state, and local disaster recovery officials. Indeed, planning for continuity of service in the event of a disaster has been an integral part of wireless carriers' operations. As such, carriers have developed their own array of best practices to anticipate and resolve problems created by both natural and man-made disasters.

Moreover, despite UTC's recent claims to the contrary,[46] utilities are eligible to receive priority access on commercial wireless networks during emergencies.[47] In adopting rules providing utilities with priority access ("PAS"), the FCC noted:

> If [commercial wireless] systems are able to offer PAS, some [National Security/Emergency Preparedness] users, *especially utilities* and other non-government users, *might be able to use commercial systems for all of their needs*. This could make valuable public safety-oriented spectrum available for other users, as well as provide additional customers for the commercial services thereby allowing them to build out their systems further.[48]

CTIA also has implemented a voluntary certification program, the CTIA Business Continuity/Disaster Recovery Program, for wireless carriers that have met the planning standards and objectives necessary to ensure that they have prioritized service continuity and disaster recovery. Through this program, wireless broadband providers have designed and implemented comprehensive strategies for how to

---

[45] *Id.* at 3.

[46] *See* FCC, Comments of UTC, PS Docket No. 10-92 at 3 (June 25, 2010).

[47] *See* 47 C.F.R. § 64.402 & App. B.

[48] Establishment of Rules and Requirements for Priority Access Service, WT Docket No. 96-86, *Second Report and Order*, 15 FCC Rcd 16720, ¶ 15 (2000).

address and quickly recover from catastrophic service disruptions. Wireless providers use a variety of techniques to manage these risks. To prevent service disruptions due to physical damage, wireless network infrastructure is hardened according to specific local circumstances, and redundancy is installed throughout the network, including the deployment of cellular base stations on wheels ("COWs"), cellular base stations on light trucks ("COLTs") and other temporary base stations. When service disruptions do occur, wireless providers implement dynamic network management techniques to instantaneously reroute traffic and redirect physical and network resources as needed to minimize interruptions.[49] Such network management practices include enabling wireless switches to rapidly and dynamically reroute traffic based on needs and potential capacity congestion. A new, stand-alone Smart Grid communications system that does not draw upon the vast experience and resources of commercial wireless providers simply would not have these same resources available during emergency situations.[50]

D. Use of Existing Commercial Wireless Networks is More Cost-Effective and Eco-Friendly than Establishing a New, Dedicated Smart Grid Communications Network

Leveraging existing networks not only avoids the economic cost, but also the potential environmental impact of building and maintaining single-purpose proprietary networks. As noted above, it has been estimated that it may cost $1.5 trillion to upgrade the nation's existing electric power distribution network into a true Smart Grid by 2030.[51] One estimate indicates that building and managing a dedicated wireless Smart Grid communications network could cost a utility more than $110 million over 10 years, versus $54 million for relying on a commercial network over a similar period of time.[52] Even this estimate seems low considering that wireless

[49] *See* FCC Comments of CTIA, PS Docket No. 10-92 at ii-iii (June 25, 2010). These dynamic network practices underscore the critical need for carriers to retain this capability free of restrictions on network management practices.

[50] Some parties have argued that the experience gained from Hurricane Katrina demonstrates that utility networks were operational when some commercial networks were not. *See* FCC, Comments of UTC, GN Docket No. 09-47 at 5 (Oct. 2, 2009). However, the Hurricane Katrina panel noted that commercial wireless networks were unable to receive priority power restoration from utilities. *See* Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Order*, 22 FCC Rcd 10541, ¶ 43 (2007).

[51] *See* Smart Grid System Report at viii (DOE, July 2009) (citing estimates from the Brattle Group).

[52] *See* James D. Fama, *Experts Say Public Wireless Networks are Appropriate for Smart Grid Applications*, ELECTRIC LIGHT AND POWER, *available at:* http://www.elp.com/index/display/article-display/0414592383/articles/utility-automation-engineering-td/volume-15/Issue_6/departments/notes/New_EEI_Report_Shows_US_Transmission_Investment_Large_Growing.htm l (last visited July 12, 2010).

carriers spend more than $20 billion annually to upgrade their existing networks. Moreover, commercial wireless carriers have developed new, innovative pricing plans to facilitate use of their networks for Smart Grid deployments.[53]

Both the California Public Utility Commission[54] and the New York Public Service Commission[55] have recognized the benefits of commercial networks and encouraged utilities to consider these networks in Smart Grid planning efforts. For similar reasons, CTIA has opposed dedicating spectrum solely for utility Smart Grid communications networks.[56]

In addition to the cost benefits associated with use of existing commercial networks, reliance on existing networks is more environmentally sustainable than constructing and maintaining new dedicated Smart Grid communications networks. Existing wireless networks make use of existing infrastructure. In contrast, the construction of new wireless networks would require extensive new construction that, in turn, would utilize additional raw materials and likely require extensive site clearing and attendant time-consuming environmental reviews. Further, the creation of a new dedicated network would increase power demands as compared with utilization of an existing network.

---

[53] *See* Fierce Wireless, *AT&T To Offer Wireless Smart Grid Technology To Utility Companies* (March 2009), *available at:* http://www.fiercewireless.com/press-releases/t-offer-wireless-smart-grid-technology-utility-companies-0 (last visited July 12, 2010).

[54] In the California Public Utilities Commission ("CPUC") decision adopting requirements for utilities' smart grid deployment plans, the CPUC stated that it was "reasonable to require that a utility's Smart Grid strategy demonstrates how the utility will evaluate whether third party communications that meet the security and performance requirements of the Smart Grid. We expect that before the Commission approves a specific Smart Grid infrastructure investment, the Commission will wish to ascertain whether investments in Smart Grid communications are cost-effective and whether a utility has adequately considered a range of alternatives, especially those concerning the use of existing and future communications infrastructure operated by third parties." California Public Utilities Commission, Order Instituting Rulemaking to Consider Smart Grid Technologies Pursuant to Federal Legislation and on the Commission's own Motion to Actively Guide Policy in California's Development of a Smart Grid System, *Decision Adopting Requirements for Smart Grid Deployment Plans Pursuant to Senate Bill 17 (Padilla), Chapter 327, Statutes of 2009*, Rulemaking No. 08-12-009, at 47 (June 24, 2010).

[55] The New York Public Service Commission strongly encouraged "utilities to work with established network providers to leverage their available infrastructure and operational expertise in deploying smart grid communications solutions." *See* American Recovery and Reinvestment Act of 2009- Util. Filings for N.Y. Economic Stimulus *et al*., *Order Authorizing Recovery of Costs Associated with Stimulus Projects*, NY Pub. Serv. Comm'n, CASE 09-E-0310 (July 27, 2009), at 41.

[56] *See* FCC, Comments of CTIA, GN Docket No. 09-47 at 8-9 (Oct. 2, 2009).

E. The Use of Existing Commercial Wireless Networks Will Facilitate Consumer Utilization of Smart Grid Features

As noted in Section I above, there are numerous commercial wireless applications currently available to consumers for monitoring and conserving energy usage. Consumers will continue to look to their commercial wireless providers for consumer-oriented Smart Grid applications. Smart grid implementation may be inhibited if new, dedicated networks are created and consumers are required to utilize those networks to monitor and control their power consumption. In contrast, by utilizing commercial wireless networks for Smart Grid communications, consumer utilization of Smart Grid features will accelerate because they will not have to acquire new devices or equipment. Simply installing a new application on their existing smartphone or laptop will provide them the necessary access to Smart Grid features. Further, it likely will be easier for new applications to be created if the Smart Grid information is carried over the same network. Given consumers' overwhelming interest in having communications access wherever they are, the wireless ecosystem (which includes carriers, infrastructure providers, device manufacturers, operating system developers and application providers) is uniquely able to reach the consumer.

III. The Federal Government Should Not Allocate Dedicated Smart Grid Spectrum, but Should Rely to the Maximum Extent Possible on Existing Commercial Wireless Networks

Sound spectrum management policy dictates that policymakers promote Smart Grid deployments that utilize commercial wireless networks, rather than the establishment of new spectrum allocations or set-asides dedicated to particular uses, such as Smart Grids or utility functions. In this era of increasing demand for spectrum, as the FCC, NTIA and the Administration all are investigating ways to reharvest and reallocate spectrum, it would be inefficient to consider devoting unique spectrum for the creation of new wireless Smart Grid networks when commercial networks can satisfy the Smart Grid systems – and a host of other wireless uses at the same time – over the same spectrum.

FCC Chairman Genachowski recently noted that: "Spectrum is the oxygen of wireless, and the future of our mobile economy depends on spectrum recovery and smart spectrum policies."[57] Similarly, Lawrence H. Summers, Economic Policy Assistant to the President and Director of the National Economic Council recently remarked: "Technological innovation can greatly expand what we can do with the

[57] Julius Genachowski, Chairman, Fed. Commc'ns Comm'n, Statement on Obama Administration's Wireless Broadband Initiative (June 28, 2010), *available at:* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-299209A1.pdf (last visited July 12, 2010).

existing spectrum. But there is a limit to how quickly we can invest and innovate. That's why we need to make more spectrum available for higher-value uses."[58]

Setting aside spectrum dedicated to a single use is inconsistent with allocating spectrum to the highest and best use. Spectrum should be made available via auctions to ensure that it is put to the highest and best use with said uses determined by market forces, rather than government mandate.

As George W. Arnold, the National Coordinator for Smart Grid Interoperability for NIST, stated before Congress:

> There are proposals for new approaches, such as the Utility Telecom Council's proposal for the allocation of dedicated spectrum for utility communications. With the high demand for spectrum from many different kinds of radio systems, the concept of dedicating spectrum for one particular application must be considered carefully so as not to use the critical resource inefficiently.[59]

Commercial wireless networks are not dedicated to a single application. These networks efficiently and effectively serve a multitude of applications for consumers, businesses, and the government. Mobile wireless providers are in the business of building and maintaining communications networks designed to satisfy the needs and demands of a range of customers. These providers also have extensive experience serving enterprise customers. They have the incentive to constantly upgrade their networks to serve an ever-growing array of devices and applications. As established in the numerous examples above, commercial wireless network operators provide a highly-efficient platform for broadband deployment across multiple national purposes, including Smart Grid deployment and energy efficiency. In contrast, some utility companies and Smart Grid manufacturers lack the expertise and incentive to design, deploy, maintain and improve the most efficient networks possible. As Mr. Arnold stated, the government should be careful not to use spectrum resources inefficiently.

---

[58] Lawrence H. Summers, Economic Policy Assistant to the President and Director of the National Economic Council, Remarks at the New America Foundation: Technological Opportunities, Job Creation, and Economic Growth (June 28, 2010).

[59] *Effectively Transforming Our Electric Delivery System to a Smart Grid: Hearing Before the Subcomm. on Energy and Environment of the H. Comm. on Science and Technology*, 111th Cong., 8 (July 23, 2009) (testimony of George W. Arnold, National Coordinator for Smart Grid Interoperability).

CONCLUSION

CTIA supports efforts to facilitate the modernization of electric distribution networks through the creation of "Smart Grids." Wireless communications are a critical component of Smart Grids and commercial wireless networks can readily satisfy the communications requirements of Smart Grid applications. Commercial wireless networks are ubiquitous, secure, reliable, and cost-effective solutions for Smart Grid implementation. Moreover, commercial wireless network operators have the expertise to deploy and maintain these networks.

Sound spectrum management policy dictates that policymakers promote Smart Grid deployments that utilize commercial wireless networks, rather than the establishment of new spectrum allocations or set-asides dedicated to particular uses, such as Smart Grids or utility functions. It would be inefficient to devote unique spectrum for the creation of new wireless Smart Grid networks when commercial networks can satisfy the Smart Grid systems – and a host of other wireless uses at the same time – over the same spectrum.

Respectfully submitted,

By: */s/ Jacqueline R. McCarthy*

Jacqueline R. McCarthy
Director, State Regulatory Affairs

Brian M. Josef
Director, Regulatory Affairs

Christopher Guttman-McCabe
Vice President, Regulatory Affairs

Michael F. Altschul
Senior Vice President and General Counsel

CTIA-The Wireless Association®
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081