Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Effects on Broadband Communications Networks of Damage to or Failure of Network Equipment or Severe Overload	)	PS Docket No. 10-92
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REPLY COMMENTS OF AT&T INC.

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SUMMARY

The initial comments in this proceeding confirm the benefits of allowing the competitive marketplace to drive survivability efforts. The majority of commenters strongly agree with AT&T that broadband communications networks are generally well-equipped to withstand localized or distributed physical damage or severe overloads. The record highlights that broadband network operators are driven by competitive forces to constantly improve their networks and enhance their survivability. In the absence of prescriptive regulation, broadband networks have been designed with many built-in redundancies and few single points of failure. Broadband network operators have also taken steps to secure the physical facilities housing their network elements against damage, including by following industry-developed best practices. Broadband network providers have additionally adopted other proactive measures to promote network quality and develop effective procedures to respond rapidly to most incidences of physical damage or severe overload. And, the unfettered marketplace has generated survivability innovations, such as devices containing terrestrial wireless and satellite functionality that can provide critical back-up capability for first responders and other emergency service personnel.

These resilient broadband networks have developed and flourished in the absence of Commission intervention. While competition has been an important driver of network survivability, the comments also underscore that industry standard-setting bodies and public-private partnerships have been key to this result. The efforts of these groups have received widespread support from network operators. Yet, the comments make clear that such standards must be voluntary and provide operators with the flexibility to pursue augmented or modified approaches where warranted. AT&T joins other commenters in cautioning the Commission against adopting regulations in an area that has been successfully self-regulating.

While a few commenters representing electric utilities assert that commercial broadband networks are not sufficiently survivable, the facts demonstrate otherwise. Electric utilities increasingly rely on commercial broadband networks by partnering with commercial communications operators in the development of Smart Grid systems. Contrary to the assertions of some utilities, broadband network operators generally provide some form of backup power at critical facilities – typically at levels equal to or greater than the minimum requirements for the vast majority of Smart Grid applications. Further, federally sponsored priority provision service and priority restoration programs are supported by most network operators and are available to qualifying electric utility companies in the event of an emergency. To the extent that electric utilities have additional needs, they can contract with broadband operators for expansion of coverage or enhanced network performance, as some utilities have already done. Thus, there is no basis for allocating scarce spectrum for the construction of single use Smart Grid networks when the spectrum would more efficiently be used by commercial networks that could meet Smart Grid needs as well as the broader needs of the public and do so in a more cost-effective manner.

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REPLY COMMENTS OF AT&T INC.

AT&T Inc., on behalf of itself and its affiliates ("AT&T"), respectfully submits these reply comments in response to the Federal Communications Commission's ("FCC" or "Commission") Notice of Inquiry ("NOI") seeking comment on the ability of existing broadband communications networks to withstand localized or distributed physical damage or severe overloads.[1] In its initial comments, AT&T highlighted the design and operating features of its wireless and wireline broadband networks that enable them to withstand physical damage and sudden increases in traffic, and cautioned the Commission against adopting regulations in an area that has been successfully self-regulating through competition, best practices and standards group efforts.

The majority of other comments filed in response to the NOI similarly emphasized the survivability of broadband networks and demonstrated that broadband network operators are driven by competitive forces to constantly improve their networks and enhance their survivability. Commenters also praised the efforts of standards groups in developing effective

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[1] *Effects on Broadband Communications Networks of Damage to or Failure of Network Equipment or Severe Overload*, Notice of Inquiry, FCC 10-62 (April 21, 2010) ("NOI").

survivability measures that operators have adopted. While a few commenters representing electric utilities asserted that commercial broadband networks are not sufficiently survivable, the fact is that commercial broadband networks today effectively support utility companies, and Smart Grid partnerships between broadband network operators and electric utilities are increasing. As such, the Commission should reject calls to allocate additional spectrum to utility companies for single-use Smart Grid networks.

I. THE RECORD IN THIS PROCEEDING DEMONSTRATES THE SURVIVABILITY OF BROADBAND NETWORKS AND DETAILS THE ELEMENTS THAT ARE KEY TO THIS SURVIVABILITY

In its comments, Comcast Corporation correctly observed that "network operators . . . have taken responsibility for ensuring that their broadband networks delivered the services consumers needed" and that "[t]he result has been a remarkably resilient and reliable network of broadband networks . . . that have many built-in redundancies and few single points of failure."[2] Indeed, the record in this proceeding clearly demonstrates that, by leaving network survivability in the hands of operators and industry standards groups, broadband network operators have developed and implemented many innovative strategies that promote survivability and minimize points of failure in their networks. By working with industry standards groups and engaging in public-private partnerships, these network operators have developed new standards that benefit the industry as a whole. The industry also continues to innovate in ways that promote network resiliency. The vast majority of commenters agree with AT&T that the Commission should not disrupt this productive and innovative behavior through the adoption of prescriptive rules.

[2] Comments of Comcast Corporation, PS Docket No. 10-92, at 3 (June 25, 2010) ("Comcast Comments").

A. The Commenters Have Identified Network Design Principles and Operational Practices That Providers Currently Follow to Effectively Promote Survivability.

In their initial comments, AT&T and other network operators described the design features of their wireless and wireline broadband networks, as well as operational practices, that promote continuity of service during incidents which have the potential to cause physical damage and severe overloads to network facilities. These include redundancies inherent in the design and construction of the network, security measures at key physical facilities, and comprehensive and effective response strategies in the face of a disaster. The record reflects that intense competitive forces in the broadband marketplace encourage network operators to make considerable investments in network survivability and to continually improve and update these efforts.

1. The Redundancies in Broadband Networks Substantially Contribute to Survivability.

Redundancy at the network core is a key feature of network survivability for wireline broadband networks. As AT&T explained in its comments, its core wireline network is designed with a "web" architecture so that there are multiple pathways to and from individual routers in the core, which provide alternate routes through which traffic can travel.[3] Verizon's network "employs dual-path redundancy from the Internet backbone through the LATA core router to the gateway router," "utilizes two circuits in diverse pathways and houses the LATA core routers in physically separate buildings," and its dual paths are each designed to carry 100 percent of anticipated network traffic and automatically switch over in the event that one of the paths fails.[4]

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[3] Comments of AT&T Inc., PS Docket No. 10-92, at 4-5 (June 25, 2010) ("AT&T Comments").

[4] Comments of Verizon and Verizon Wireless, PS Docket No. 10-92, at 3 (June 25, 2010) ("Verizon Comments").

Similarly, Comcast has built redundancy and back-up systems into its network and has engineered its network based on an "active/active" design that enables Comcast to "safeguard against virtually any unexpected failure in part of the network."[5] Sprint's SprintLink backbone core network contains links that "are generally deployed in pairs, are physically diverse, are all active, and are engineered to enable Sprint to handle sudden and unexpected surges in traffic over the network."[6] Qwest listed numerous examples of survivability features in its network, citing diversity and redundancy as "critically important survivability features."[7] US Telecom correctly observed that "there are substantial market-based incentives to invest in and secure critical communications infrastructure," and these practices help ensure the viability and survivability of communications networks.[8]

Just like their wireline counterparts, wireless network operators have also constructed highly redundant and survivable broadband networks. Several commenters explained that wireless networks feature overlapping cell sites in many areas that enable users to maintain

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[5] Comcast Comments at 5-6.

[6] Comments of Sprint Nextel Corporation, PS Docket No. 10-92, at 5 (June 25, 2010).

[7] Comments of Qwest Communications International, Inc., PS Docket No. 10-92, at 3-4 (June 25, 2010) ("Qwest Comments") ("Survivability features include link diversity, node diversity, card diversity, and strong control plane redundancy and availability. In the Qwest national (or IP) network, for example, broadband remote access servers (BRAS) have redundant power supplies and control complexes. A BRAS has multiple connections to a metropolitan optical Ethernet (MOE) network and the national network. Routers and switches used in a MOE network have redundant power supplies, control complexes and line cards. Each switch or router is connected to at least two other switches or routers and the switches and routers communicate with each other.").

[8] Comments of The United States Telecom Association, PS Docket No. 10-92, at 15 (June 25, 2010) ("US Telecom Comments").

connectivity via a neighboring site should a transmitter fail due to physical damage.[9] Redundant nodes and links in wireless networks provide further protection against damage – AT&T's wireless data core is comprised of fully redundant nodes and links. And, data services provided from a given AT&T data center location are designed to "fail-over" to other data centers in the event of an outage. Wireless broadband network providers are able to augment their facilities with rapidly deployable mobile assets when additional capacity is required as a result of physical damage or spikes in traffic.[10] Intense competition for customers who demand constant availability of service has driven wireless broadband operators to adopt these measures to enhance the robustness of their networks. Thus, the adoption of regulations to promote survivability is not necessary and could interfere with the effective and innovative efforts already being generated in the marketplace.

The commenters agree that the primary vulnerabilities in wireless and wireline broadband networks lie at the network edge, but that outages resulting from physical damage at the edge would affect a relatively small number of users.[11] For this reason, AT&T and other operators encourage end users and large business customers to pursue various means to ensure access to

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[9] Verizon Comments at 4. *See also* Comments of CTIA—The Wireless Association®, PS Docket No. 10-92, at 7 (June 25, 2010) ("CTIA Comments") ("Broadband wireless networks often have numerous cell sites in a market, many of which may overlap in order to provide maximum capacity. As such, failure at a cell site during an emergency may not lead to loss of service if there is another cell nearby that can serve the area, although total capacity and data rates may be affected.").

[10] Verizon Comments at 4; CTIA Comments at 8.

[11] *See, e.g.,* Verizon Comments at 4 ("While outages may occur when a problem exists in the last mile, such outages would affect no more than 1,000 to 2,000 of the millions of customers served, with a majority of these events normally affecting even fewer customers."); Qwest Comments at 4-5 ("The one primary single point of failure in broadband networks is the last mile access connection from a customer's premises to the edge of the metropolitan or regional network. In the case of last mile access, a modem or line failure typically affects a single customer.").

the connectivity they need in the event of a disaster that causes physical damage or increased traffic on broadband networks. As US Telecom notes, "consumers are increasingly establishing redundancy on their own" by purchasing both wireless and wireline voice services.[12] Certain broadband customers may qualify for programs such as Telecommunications Service Priority ("TSP"), which facilitates service restoration, and AT&T encourages users to determine their eligibility for this and similar programs and to take advantage of them where possible. Finally, AT&T and other broadband network operators offer a number of services to support the specific continuity needs of government agencies and large business customers. AT&T believes that it is critical that such customers carefully evaluate their requirements and obtain the resources needed to meet them.

2. Broadband Network Operators Take Steps to Secure Their Physical Facilities Against Damage.

As the Commission noted in the NOI, the Network Reliability and Interoperability Council ("NRIC") developed a set of best practices for communications physical security, and the record confirms both the widespread adoption of industry best practices and the benefits that flow from allowing the industry to self-regulate in this area. AT&T agrees with the Alliance for Telecommunications Industry Solutions ("ATIS") that "Best Practices are extremely important to the industry" and that "the Commission must not disrupt this environment by imposing unnecessary regulatory mandates on the use of Best Practices."[13]

The initial comments in this proceeding show the efforts undertaken by broadband network operators to secure the physical facilities housing their network elements. AT&T's

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[12] US Telecom Comments at 19.

[13] Comments of the Alliance for Telecommunications Industry Solutions, PS Docket No. 10-92, at 8-9 (June 25, 2010) ("ATIS Comments").

critical network elements meet or exceed industry standards for continued operation when exposed to predictable environmental stresses. AT&T maintains two cable and two power entrances into each central office for diversity and enforces strict physical/access security practices. For its part, Verizon "employs internal physical security practices, including fences, access control systems, and video surveillance, to guard its critical wireline and wireless network infrastructure" and constructs buildings "to mitigate risks of natural disasters that are pertinent to the areas in which the buildings are located."[14] Comcast's "facilities that house broadband network elements are built to best-in-class standards and are designed to withstand extreme environmental conditions such as floods, hurricanes, and snowstorms."[15]

It is clear, then, that the existing model – under which network operators may adopt NRIC's best practices while augmenting these practices with their own procedures – has advanced the public's interest in reliable, survivable broadband infrastructure. Several participants in this proceeding have followed this approach,[16] as has AT&T. ATIS explained that decisions to deviate from NRIC's best practices "are made based on . . . subject matter expert evaluations, risk assessments, and/or other considerations. In some situations, a best

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[14] Verizon Comments at 5.

[15] Comcast Comments at 10.

[16] *See* Verizon Comments at 7 ("Verizon has implemented a number of [NRIC's] best practices on a broad scale for its wireline and wireless broadband networks and has found them to be effective in helping to better secure its networks from physical threats."); Comcast Comments at 10 ("Comcast's practices with respect to physical security are consistent with the 'best practices' specified by the Network Reliability and Interoperability Council."); Qwest Comments at 11 ("Individual broadband network services providers typically develop their own internal physical security standards and policies that incorporate applicable elements of the NRIC best practices as well as elements of other relevant best practices."); USTelecom Comments at 15-16 ("In the broadest sense, network providers apply the NRIC best practices as appropriate in their networks. Voluntary adoption and use of these best practices is widespread throughout the industry and has contributed over time to creating one of the most reliable communications infrastructures in the world.").

practice may have been superseded by provider-specific internal practice(s). It is important to note that all service providers have their customers' needs and the protection of the network as primary concerns."[17] AT&T thoroughly agrees with this assessment by ATIS, and, as stated further below, encourages the Commission to continue to support the efforts of industry standards groups rather than adopt prescriptive regulations that will constrain the flexibility which broadband network operators need to address differing and changing survivability challenges.

3. Broadband Providers Engage in Practices That Promote Survivability in the Event of Physical Damage or Severe Overloads.

The record in this proceeding also demonstrates that broadband network operators take other proactive steps to promote network quality and respond to incidences of physical damage or severe overloads. Commenters describe the numerous measures taken by broadband network operators, in the absence of regulation, to prepare for various types of survivability threats and to actively monitor their networks and respond to specific threats.

For example, in its initial comments, AT&T highlighted its Broadband Tools program, which closely monitors the condition of network elements to quickly identify and address problems.[18] Similarly, Verizon's Network Operations Centers monitor traffic for indications of congestion and augment network paths when necessary.[19] Verizon also "closely tracks metrics for failed connection attempts and lost connections."[20] Qwest further notes that "[f]ault and performance monitoring systems are used to continuously monitor the operating status of

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[17] ATIS Comments at 10.

[18] AT&T Comments at 9-10.

[19] Verizon Comments at 3.

[20] *Id.*

broadband networks,"[21] while Comcast "has a variety of tools that monitor the broadband network and report 'link down' events."[22] Sprint's comments highlighted its efforts with regard to survivability threats, stating that it employs a group to respond to actual threats and watch for emerging threats 24 hours a day, 7 days per week.[23] All of these efforts are undertaken because broadband providers "have consistently recognized the key importance of network survivability both to their business models and to their larger role in American society."[24] As the National Cable & Telecommunications Association recognizes, such "[n]etwork management techniques are essential to preventing network overloads"[25] as well as for handling other serious threats to the network's survivability. It is thus critical that the Commission continue to allow network operators the flexibility to manage their networks to best serve customers and not adopt regulations that could thwart or constrain these efforts.

Network operators also promote the survivability of broadband networks by taking effective steps to prepare for disasters and responding quickly when disasters strike. As AT&T has previously noted, its extensive Network Disaster Recovery ("NDR") program enables it to increase network preparedness for events such as hurricanes and terrorist attacks and to rapidly restore communications networks, if necessary, in the wake of such disasters. AT&T detailed

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[21] Qwest Comments at 5.

[22] Comcast Comments at 11. *See also id.* ("Topology events, such as an outage in a particular geographic area, are also monitored and reported. Both activities are ticketed and reacted to promptly by network operations personnel 24 hours a day, 7 days a week, 365 days a year.").

[23] Sprint Comments at 2.

[24] CTIA Comments at 14.

[25] Comments of the National Cable & Telecommunications Association, PS Docket No. 10-92, at 9 (June 25, 2010) ("NCTA Comments"). *See also* USTelecom Comments at 21 ("Network management tools can be effective mechanisms for improving traffic flow for all users, and effectively limiting congestion to limited areas of the network.").

some of the activities of this program in its initial comments in this proceeding. Since those comments were filed, AT&T's NDR team has conducted another network disaster simulation, this time in San Jose, California, that tested and refined the team's speed and efficiency in restoring AT&T's networks in the event of a disaster.[26]

The record in this proceeding demonstrates that broadband network operators implement "robust practices and processes that allow these businesses to react more rapidly during times of crisis, thereby ensuring the viability and survivability of the network."[27] By maintaining generators and back-up power at central offices and/or cell sites,[28] deploying temporary and/or mobile equipment,[29] ensuring that employees are able to work remotely,[30] and engaging in advance planning (including simulation exercises),[31] network operators are able to respond quickly and effectively to events that threaten their infrastructure. Put simply, broadband providers "have made [disaster recovery] preparations in order to ensure continued quality service to their customers," and have tremendous competitive incentives to "continue participating in industry groups focusing on network reliability and disaster preparedness, in the

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[26] Press Release, AT&T, AT&T Recovery Exercise to Simulate San Jose Network Disaster (July 9, 2010), *available* at http://www.att.com/gen/press-room?pid=4800&cdvn=news &newsarticleid=30942.

[27] US Telecom Comments at 15.

[28] Verizon Comments at 5; Comcast Comments at 10; Sprint Comments at 6.

[29] Verizon Comments at 4; Qwest Comments at 8, n.13; Sprint Comments at 7.

[30] US Telecom Comments at 21.

[31] Qwest Comments at 8; Sprint Comments at 7. *See also* CTIA Comments at 7 ("To shorten recovery time in disaster situations, carriers regularly stockpile equipment and provisions, such as spare parts, heavy equipment, sandbags, and tarps. When there is advance notice to prepare for a specific event, carriers will stockpile additional supplies, re-check inventories, and ensure fuel tanks are at capacity. Carriers also pre-position crews and equipment nearby or at event sites.").

development of industry best practices, and in refining business continuity plans."[32] There is "no incentive that the Commission could provide that would be greater than a wireless broadband service provider's existing incentive to protect its significant network investment and engender the confidence of its customers."[33] Thus, regulation in this arena is unnecessary at best and harmful at worst.

B. The Comments Confirm the Effectiveness of Standards Group Efforts and Public-Private Partnerships in Promoting Survivability.

As demonstrated above, sustainable, resilient broadband networks have flourished in the absence of Commission intervention. While competition is an important driver of network survivability, industry standards-setting bodies and public-private partnerships have played a key role in developing practices and procedures, resulting in today's highly survivable broadband networks. AT&T urges the Commission to encourage these efforts, participate where appropriate, and defer to the findings of these groups rather than impose less flexible and nuanced regulations.

These reply comments have already highlighted the role that one industry standards group – NRIC – has played in developing practices that secure physical facilities against damage. However, several other groups are making significant contributions. In its comments, ATIS highlighted several forums that have produced work related to the deployment of reliable and robust broadband networks,[34] including the Network Reliability Steering Committee, which has "been working collaboratively with the Commission over the last 17 years to examine and

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32 US Telecom Comments at 15.

33 CTIA Comments at 12.

34 ATIS Comments at 3-4.

mitigate potential vulnerabilities and enhance the reliability of communications networks."[35] Further, the Commission's Communications Security, Reliability and Interoperability Council ("CSRIC") is currently chartered to provide recommendations to the Commission to ensure security, reliability, and interoperability of communications systems and currently contains ten working groups focused on developing various best practices.

The U.S. Department of Homeland Security ("DHS") has also engaged the private sector on issues of communications reliability through bodies such as the President's National Security and Telecommunications Advisory Committee ("NSTAC"), the National Communications System ("NCS"), the National Coordinating Center for Telecommunications ("NCC"), the Critical Infrastructure Partnership Advisory Council ("CIPAC"), the National Infrastructure Protection Plan ("NIPP") and the Communications Sector-Specific Plan adopted as part of the NIPP framework, and the Communications Government Coordinating Council ("CGCC"), all of which involve partnerships between the public and private sectors aimed at identifying risks to communications infrastructure and developing solutions to address them. These public-private initiatives have "resulted in mutually beneficial information-sharing mechanisms and the implementation of programs to maintain a reliable and resilient communications infrastructure."[36]

The efforts of these groups have received widespread support from network operators and communications industry associations.[37] AT&T joins other commenters who have called for the

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35 *Id.*

36 NCTA Comments at 17.

37 *See, e.g.*, Comments of MetroPCS Communications, Inc., PS Docket No. 10-92, at 2 (June 25, 2010) ("MetroPCS believes that industry forums have served the public well in the past by promulgating best practices for network reliability and survivability and remain the most effective instruments through which to create effective standards for the reliability and

Commission to work collaboratively with standards groups and public-private partnerships[38] and to encourage the adoption of best practices to promote infrastructure survivability. As ATIS noted:

> Best Practices are extremely important to the industry. The primary objective of Best Practices is to provide guidance based on industry expertise and experience. The success of these Best Practices in enhancing network reliability stems from their development in a voluntary and consensus-based environment that encourages a pooling of expertise that is used to both identify and thoroughly examine potential Best Practices.[39]

AT&T concurs with ATIS and believes that, by encouraging these efforts, the Commission can most effectively advance its survivability objectives.

C. Devices Containing Terrestrial Wireless and Satellite Functionality Can Promote Continuity of Service During Severe Network Disruptions.

In their comments, the MSS/ATC Coalition ("Coalition") highlighted the role that satellite technologies can play in further promoting connectivity. As the Coalition observed, "[d]isasters that impair or destroy terrestrial wireless networks are extremely unlikely to have any adverse impact on satellite networks."[40] In fact, the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks found that satellite networks "appeared to be the communications service least disrupted by Hurricane Katrina" and that "[m]obile satellite operators reported large increases in satellite traffic without any particular

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survivability of America's communications networks."); US Telecom Comments at 2 (noting the "substantial success that has been achieved through existing public-private partnerships that are more ideally suited to achieving the Commission's desired outcomes").

[38] Comcast Comments at 17-18; US Telecom Comments at 4.

[39] ATIS Comments at 8-9.

[40] Comments of the MSS/ATC Coalition, PS Docket No. 10-92, at 8 (June 25, 2010) ("MSS/ATC Comments").

network/infrastructure issues."[41] The Coalition further stated that "adding MSS access capability to terrestrial mobile broadband devices can bring substantial qualitative improvements to the reliability of mobile communications services."[42]

To that end, AT&T has entered into an agreement with TerreStar Networks to offer an integrated smart phone mobility solution that combines primary terrestrial wireless connectivity with backup satellite capability.[43] While broadband networks are already highly resilient, this device "can provide a critical communications back-up capability, important to public safety agencies, first responders, emergency services and disaster recovery groups"[44] – entities that require an even enhanced level of service continuity. While AT&T supports the availability of dual-mode devices, it nonetheless cautions the Commission against adopting regulations prescribing the use of specific technologies. Innovations such as the project between AT&T and Terrestar are most likely to occur in an unfettered marketplace. The Commission should thus continue its policy of providing technological flexibility to broadband network providers and device manufacturers so as not to preclude future innovations.

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[41] Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Report and Recommendations to the Federal Communications Commission*, at 10-11 (June 12, 2006).

[42] MSS/ATC Comments at 6.

[43] Press Release, AT&T, AT&T Announces Agreement with TerreStar to Offer Integrated Cellular/Satellite Solution (Sept. 30, 2009), *available at* http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27180.

[44] *Id.*

II. CONTRARY TO CLAIMS BY CERTAIN ELECTRIC UTILITY COMMENTERS, COMMERCIAL BROADBAND NETWORKS POSSESS SURVIVABILITY QUALITIES THAT CAN SATISFY THEIR COMMUNICATIONS NEEDS.

As the record in this proceeding reveals, wireline and wireless broadband networks are generally protected against threats of physical damage and severe overload. The benefits of this resiliency extend to electric utility customers and commercial customers alike. Nevertheless, a few commenters from the electric utility industry ask the Commission to reallocate 30 MHz of spectrum for utility company networks, suggesting that this spectrum allocation is needed because commercial broadband networks do not possess adequate survivability characteristics.[45] However, the record evidence tells a different story. Contrary to these commenters' assertions, commercial broadband networks can and do effectively support the communications needs of utilities.

Indeed, electric utilities increasingly rely on commercial broadband networks by partnering with commercial communications operators in the development of Smart Grid systems.[46] AT&T, for example, currently supports SmartSynch's Smart Grid solution, which allows electric utilities to remotely monitor electric meters.[47] Texas-New Mexico Power

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[45] *See* Edison Comments at 5 ("Utilities and critical infrastructure industries need reliable communications systems, and most commercial systems are not designed to withstand major weather events."); Sensus Comments at 7 (Asks the Commission to "investigate critical infrastructure's use of inadequate public broadband networks.").

[46] Electric utilities that seek 30 MHz of spectrum point to the electric industry's historical reliance on private networks. *See* UTC Comments at 2. The historical use of private radio systems, however, does not demonstrate a prospective need for private networks and additional, dedicated spectrum. Prior to the new millennia, when many of these private radio systems were installed, commercial wireless networks had neither the coverage nor the reliability that exists today. Further, the wireless capabilities and coverage now available to electric utilities through commercial wireless networks will only expand with next generation network technologies.

[47] *See* Narayan Bhat, *With SmartSynch, AT&T Offers Smart Grid Technology To Utility Companies*, TMCnet.com (March 24, 2009), *available at* http://telecom-expense-management-solutions.tmcnet.com/topics/enterprise-mobilecommunications/articles/52879-with-smartsynch-

("TNMP") selected the SmartSynch/AT&T SmartMeter™ solution for a 10,000 unit point-to-point trial deployment to residential customers in TNMP's service area.[48] An end-user customer, the State of Mississippi, likewise chose to install SmartSynch/AT&T meters in public buildings to improve energy efficiency.[49] AT&T's wireless network also supports Cooper Power Systems outage monitors and voltage sensors,[50] as well as Itron's OpenWay® local-area networking, which gives utilities two-way communications for access to data from meters throughout their systems.[51] Likewise, other commercial communications operators are facilitating Smart Grid implementation over their existing networks.[52]

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att-offers-smart-grid-technology-utility.htm ("SmartSynch Offer"). SmartSynch reports that its smart grid solution is deployed at more than 100 utilities throughout North America. *Id*.

[48] PRNewswire via COMTEX, *Texas-New Mexico Power Selects SmartSynch/AT&T Solution for 10,000 Unit Pointto-Point SmartMeter™ Trial Deployment Throughout Texas Market*, IT.TMCNET.com (April 16, 2009), *available at* http://it.tmcnet.com/news/2009/04/16/4136751.htm.

[49] Press Release, *SmartSynch Awarded State Energy Program Grant*, Mississippi Development Authority (Aug. 20, 2009), *available at* http://www.mississippi.org/index.php?id=719.

[50] *See* Jeff St. John, *AT&T Links Cooper Power Systems' Smart Grid Devices*, greentechgrid (June 25, 2009), *available at* http://www.greentechmedia.com/articles/read/att-links-cooper-power-systems-smart-grid-devices/.

[51] Press Release, *AT&T Powers AMI Platform from Itron* (Aug. 18, 2008), *available at* http://www.itron.com/pages/news_press_individual.asp?id=itr_016767.xml.

[52] *See, e.g.* Jeff St. John, *Verizon, Itron Hook Up to Offer Smart Grid Communications*, Seeking Alpha (April 2, 2009), *available at* http://seekingalpha.com/article/129114-verizon-itron-hook-up-to-offer-smart-gridcommunications; Marguerite Reardon, *T-Mobile Goes for Smart Grids*, CNET News (April 23, 2009), *available at* http://news.cnet.com/8301-1035_3-10226418-94.html. Not only do commercial communications networks currently support the Smart Grid, they are the best method to support the Smart Grid now and for the foreseeable future. Achieving a fully-interoperable Smart Grid is an enormous task, and more rapid progress will be made if there is more collaboration between utilities and commercial communications providers when deploying Smart Grid infrastructure. Such an approach would minimize the risks of stranded costs and obsolescence and maximize efficient development of a Smart Grid.

The record is clear that broadband networks are highly robust and can, and do, effectively support the needs of electric utilities, including by continuing service during commercial power outages, offering priority access and priority restoration, and contracting with utilities for enhanced levels of service. Given this record, the public interest does not support reallocating spectrum to electric utility companies.[53]

A. Broadband Providers Design Their Networks to Incorporate Backup Power in the Event of a Loss of Commercial Power.

Certain electric utility industry commenters assert that wireline and wireless broadband service is typically lost during a power outage because the networks have inadequate back-up power systems.[54] This is false. Broadband network operators generally provide some form of backup power at critical facilities to ensure continuity of service. As discussed previously and throughout the initial comments, broadband providers compete in part on the reliability of their service and, consequently, there are strong incentives for those providers to take steps to try to ensure that service is not interrupted, particularly by threats as predictable as power outages.

For its part, AT&T has invested billions of dollars in reserve power infrastructure and deployable (portable) power generating equipment. Over 99 percent of AT&T's wireless sites are engineered with reserve batteries and/or permanent generators. AT&T switching centers are

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[53] Of course, the use of commercial communications networks need not be to the exclusion of utility-owned assets. Utilities with existing communications systems can utilize commercial communications networks and managed services offered by commercial communications operators to augment the capabilities of their existing systems.

[54] Edison Comments at 5 ("[M]ost commercial systems are not designed to withstand major weather events and may not have the battery back-up needed to communicate in areas where power has been knocked out."); UTC Comments at 3 ("[Utilities are understandably concerned about using carrier networks without adequate battery back-up."); *see also* NASUCA Comments at 5 ("Wireline-based broadband service is typically lost during a power outage, as is wireless service (including broadband) unless the cell towers also have robust back-up power systems in place.").

typically equipped with redundant permanent generators with local fuel supply to allow for more than four days of run time. With regular refueling, these generators can maintain power at a location virtually indefinitely until commercial power is restored. In the unlikely event that both permanent generators sustain damage, each switching center is equipped with an 8-hour battery reserve. Supplementing all of this, AT&T maintains a fleet of portable generator assets that can be rapidly installed to augment permanent systems as needed.[55] Such contingency measures used by AT&T and other commercial broadband network operators provide an effective strategy for ensuring back-up power to maintain operation in most scenarios. These contingency measures more than adequately address the communications needs of electric utility companies.[56]

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[55] When appropriate, portable generators can be airlifted.

[56] Certain electric utility commenters claim that the communications integral to electric utility smart grids require very rigorous back-up power functionality and that commercial networks cannot satisfy these demands. UTC Comments at 3. AT&T disagrees. UTC recently filed comments with the Department of Energy in a proceeding on the communications needs of smart grids. *See* Comments of Utilities Telecom Council, *In the Matter of Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities To Inform Federal Smart Grid Policy*, Department of Energy Proceeding (July 12, 2010) ("UTC DOE Comments"). In its comments, UTC identifies thirty communications applications that it claims are integral to smart grids, as well as the back-up power required for each application. Fifteen applications have no requirement for back-up power; three applications need one hour or less; four applications require from one to four hours of back-up; three applications require from four to eight hours of back-up; two applications require from eight to twenty-four hours of back-up; and three applications have back-up power requirements of twenty-four to seventy-two hours. The critical takeaway from this data is that only a few smart grid applications have very demanding needs. Exceptional instances do not prove UTC's general proposition that commercial networks cannot meet smart grid needs, nor does it validate the need for donation of commercial spectrum to the utility industry. Rather, it demonstrates that certain applications must be supported by a carefully selected communications solution arrived at through cooperation between utilities and commercial service providers

B. Priority Service and Priority Restoration Programs Are Available to Electric Utility Companies in the Event of an Emergency.

Certain electric utility commenters also assert that "neither priority access nor priority restoration is available on wireless networks."[57] However, as described in AT&T's initial comments, the federal government, working with service providers like AT&T, offers several priority service programs.[58] Qualifying utilities are eligible to participate in these programs and receive priority service and priority restoration during emergencies.[59]

Specifically, AT&T and other wireless providers participate in the Wireless Priority Service ("WPS"), which offers priority calling access that greatly increases the probability of wireless call completion during an emergency.[60] The WPS program explicitly covers

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[57] UTC Comments at 3. Utility commenters argue that wireless priority access is not available. Edison Comments at 5 ("[I]n many instances commercial networks do not prioritize data traffic, which is a requirement for many utility use cases. Notably, while wireline networks may prioritize data traffic, wireless networks do not offer similar capabilities."); UTC Comments at 3 ("[N]either priority access nor priority restoration is available on wireless networks. As such, utilities are understandably concerned that the reliability of their operations will be compromised if they rely on carrier networks."). Utility commenters also argue that wireless priority restoration does not exist. Edison Comments at 6. ("[U]tilities have great concerns with the ability of commercial carriers to restore communications after major events . . . [U]tilities require priority restoration of their communication networks, which they often do not receive from commercial carriers. While wireline networks may provide priority restoration, wireless networks do not."); UTC Comments at 3 (asserting that "priority restoration is [not] available on wireless networks").

[58] AT&T Comments at 17-18.

[59] The President's National Security Telecommunications Advisory Committee ("NSTAC") has found that "[w]ith these services, [national security and emergency preparedness] users have a high probability of completing calls even during times of network stress." NSTAC, Report on National Security and Emergency Preparedness Internet Protocol-Based Traffic at ES-1 (Nov. 6, 2008), *available at* http://www.ncs.gov/nstac/reports/2008/NSEP%20IP-Based%20Traffic%20Report.pdf (last visited June 12, 2010).

[60] "Wireless Priority Service: Program Information," *available at* http://wps.ncs.gov/program_info.html. WPS provides priority for emergency wireless calls through a combination of special cellular network features. *Id*.

communications made by "[p]ower, water and sewage and telecommunications utilities."[61] The wireless industry also participates in the TSP restoration program. TSP provides eligible participants, including companies that provide "public utility services" and companies that control the "production and distribution of strategic materials and energy supplies,"[62] with preferential treatment when they need to add new lines or have existing lines restored following a disruption of service.[63] Wireless networks are specifically included in the TSP program.[64]

However, as AT&T noted in its initial comments, standards for extending these priority service and restoration programs to IP data services are currently under development. AT&T is a major participant and proponent in these standards developments and urges the Commission to support these efforts, which will provide further evidence that commercial networks can adequately address the communications needs of utilities.

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[61] "Wireless Priority Service Eligibility Criteria," *available at* http://wps.ncs.gov/eligibility.html.

[62] There are five TSP priority restoration levels, and public utility services qualify for level three and level four, which include communications lines necessary for "public health, safety, and maintenance of law and order" and communications lines necessary for maintaining "public welfare and maintenance of the national economic posture." "TSP Eligibility," *available at* http://tsp.ncs.gov/eligibility.html. The higher priority levels – levels one and two – include national security leadership and certain high-level military communications lines. Very few communications lines actually have a priority one or two assignment. Therefore, it is highly unlikely that restoration of higher priority TSP lines will appreciably slow restoration of a utility company's level-three TSP lines. *See generally* "TSP for First Responders: Frequently Asked Questions," *available at* http://tsp.ncs.gov/docs/FAQ_First%20Responders.doc.

[63] FCC Public Safety and Homeland Security Bureau, Telecommunications Service Priority (TSP), *at* http://www.fcc.gov/pshs/services/priority-services/tsp.html (last visited June 12, 2010).

[64] The TSP program defines eligible telecommunications services as "the transmission, emission, or reception of intelligence of any nature, by wire, cable, satellite, fiber optics, laser, *radio*, visual, or other electronic, electric, electromagnetic, or acoustically coupled means, or any combination thereof." "Frequently Asked Questions," *available at* http://tsp.ncs.gov/faq.html (emphasis added).

C. Electric Utility Companies Can Contract with Broadband Network Operators for Enhanced Levels of Service.

Contrary to Edison's assertion,[65] if a utility requires expanded coverage or enhanced network performance not presently available from a commercial operator's standard consumer broadband offerings, it can contract with the operator for an enhanced level of service. Specifically, utilities can negotiate service level agreements with commercial broadband network operators to facilitate the expansion of network coverage or enhanced network performance, such as through the use of managed services.[66] For its part, AT&T has entered into service level agreements with dozens of large business accounts, including electric utilities, to meet the wireless performance needs of those businesses, down to device performance. Broadband network operators have the incentive to negotiate such agreements and to make the enhancements required. Not only will doing so allow an operator to obtain (or retain) a large business customer and potentially expand the relationship into a Smart Grid partnership, but the enhancements implemented may also allow the operator to derive additional incremental benefits from expanded consumer sales.

D. The Commission Should Not Reallocate Spectrum to Electric Utility Companies for Single Use Smart Grid Networks.

Despite the requests to allocate 30 MHz of spectrum for exclusive use by utilities and other critical infrastructure companies,[67] the public interest plainly would not be served by doing

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[65] Edison Comments at 5-6 ("Utilities will also need assurance of reliability and quality of communications services, which carriers are typically reluctant to guarantee.").

[66] *See* AT&T Smart Grid Comments at 5. As part of these agreements, communications providers may subject themselves to audits.

[67] *See, e.g.*, Edison Comments at 7 ("To ensure that utility communications systems are capable of reliably covering the entire grid, the Commission should allocate at least 30 MHz of licensed spectrum below 2 GHz to utilities and CII, and should protect existing bands used by CII from further degradation."); UTC Comments at 4 ("UTC takes this opportunity to reiterate

so. First, as the previous sections have demonstrated, electric utilities can and do use commercial networks to meet their communications needs. Ample incentives exist for commercial operators to continue to enhance their broadband networks to address utility communications needs. The use of service level agreements is but one example of the market forces that provide those incentives. Further, as the Commission is well aware, wireless spectrum is a highly coveted and limited resource that must be used as efficiently as possible.[68] Rather than allocate scarce spectrum to a small number of utilities for the construction of dedicated single use Smart Grid networks, the spectrum would more efficiently be used by commercial networks that could meet Smart Grid needs as well as the broader needs of the public and do so in a more cost-effective manner. This approach enables "maximum utilization" of broadband infrastructure as Congress intended when it passed the American Recovery and Reinvestment Act.[69] It also encourages commercial communications operators to further extend broadband access to rural unserved areas if those areas contain electric grid infrastructure that must be served to accommodate a Smart Grid deployment.

Allocating additional spectrum for a dedicated single use network would also unnecessarily delay the deployment of the Smart Grid. A utility implementing its own private

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its requests for access to 30 MHz of spectrum for both data and voice communications to support smart grid and other CI communications applications."); Sensus Comments at 7 (arguing for additional spectrum for utilities).

[68] As noted above, UTC recently filed comments with the Department of Energy in a proceeding on the communications needs of smart grids. *See* UTC DOE Comments. In its comments, UTC identifies thirty Smart Grid communications applications and the bandwidth required for each application. Notably, twenty-six applications have bandwidth requirements under 100 kbps/node, two applications have requirements between 100 and 500 kbps, and two applications have requirements between 500 and 1500 kbps. Clearly, existing commercial networks have the capacity to satisfy these minimal bandwidth demands. As such, UTC's request for spectrum – let alone 30 MHz of spectrum – is unfounded.

[69] American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 6001(k)(2)(B), 123 Stat. 115 (2009).

network over dedicated spectrum would have to wait for the spectrum allocation process to be completed, clear the spectrum of incumbent users, design the Smart Grid network, negotiate with vendors to supply equipment, obtain permits (where needed) to construct towers, and, of course, actually build the network. Each of these steps requires substantial time and involves more than a little uncertainty. It also introduces substantial costs that eventually will be passed to ratepayers. Rather than undertake this time-consuming and costly process, electric utilities and their customers would be better served by partnering with commercial broadband network operators.[70] Many commercial operators already have extensive infrastructure deployed and thus can offer robust Smart Grid solutions with high standards of performance on a much more accelerated timeframe and at a much more economical cost.

III. CONCLUSION

In sum, the record is clear that wireline and wireless broadband networks are generally highly resilient and able to survive localized or distributed physical damage or severe overloads. While commenters applaud the Commission's commitment to ensuring the continued survivability of broadband networks, they agree with AT&T that the Commission could best fulfill its policy objectives by encouraging industry standards development efforts and continuing to allow providers to design and deploy their networks without onerous regulation. The Commission should also reject calls by some utility commenters for an additional spectrum allocation for their exclusive use as their needs could more rapidly and efficiently be met through the use of existing commercial networks that could additionally address the broader needs of the public.

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[70] As noted at 15-16, many utilities have already entered into partnerships with commercial broadband network operators to provide Smart Grid capabilities.

Respectfully submitted,

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