

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

In the Matter of)	
)	
Reliability and Continuity of Communications Networks, Including Broadband Technologies)	PS Docket No. 11-60
)	
Public Safety and Homeland Security Bureau Seeks Comment on 9-1-1 Resiliency and Reliability in the Wake of June 29, 2012, Derecho Storm in Central, Mid-Atlantic, and Northeastern United States)	
)	

COMMENTS OF AT&T

Robert Vitanza
Gary L. Phillips
Peggy Garber
208 S. Akard St.
Dallas, Texas 75202-4206
(214) 757-3357
Counsel for AT&T Services, Inc.

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COMMENTS OF AT&T

AT&T Services, Inc., on behalf of itself and its affiliates (collectively “AT&T”), hereby responds to the Federal Communications Commission’s (“FCC” or “Commission”) Public Notice seeking comment on the reliability and resiliency of communications networks, particularly those supporting 9-1-1, after the June 29, 2012 derecho storm in the Washington, D.C. (“D.C.”) metropolitan region.¹

I. INTRODUCTION & SUMMARY

The June 29, 2012 derecho storm was an unusual weather event that was sudden, unexpected, and extreme. The storm was atypical in its force and the extent of damage it caused; and although no large-scale, complex infrastructure system could be expected to emerge from the storm unscathed, AT&T’s wireless network performed well during and after the storm. The loss of power to several cell sites in the D.C. region, compounded by an atypical increase in voice and SMS traffic during and after the storm, resulted in communications disruptions for some

¹ Public Safety and Homeland Security Bureau Seeks Comment on 9-1-1 Resiliency and Reliability in the Wake of June 29, 2012, Derecho Storm in Central, Mid-Atlantic, and Northeastern United States, PS Docket No. 11-60, 10-92, *Public Notice*, DA 12-1153 (rel. July 18, 2012) (“Public Notice”).

AT&T customers. Due to AT&T's substantial preparation and training for such events, however, AT&T's network recovery was swift, efficient, and well-coordinated.

AT&T continually improves and refines its disaster response capabilities, and while there are some areas in which Commission action can be helpful, the Commission should avoid imposing any new one-size-fits-all regulatory mandates, such as on-site back-up power requirements. Although providing appropriate back-up power facilities is important—and is a step carriers already take—many factors go into a determination of the correct back-up power strategy for a particular facility. A rigid mandate for on-site back-up facilities would eliminate a network operator's ability to make local assessments and determinations regarding the appropriate back-up power solution. An on-site back-up power requirement could conflict with numerous Federal, State, and local laws, and may not be safe or feasible for a given installation. Indeed, it may in some cases be impossible to comply with a rigid on-site back-up power obligation.

There are a number of measures the Commission can take that would assist AT&T and other network operators in responding most efficiently to future catastrophic events. Most significantly, the Commission should identify and make available the additional spectrum resources necessary to support growth in demand for mobile services during periods of normal network usage and during period of peak usage, such as following an emergency. While additional spectrum would not prevent all service outages, it would enable providers to better accommodate the surge in traffic, coupled with fewer network resources, that typically follows a disaster. Commission leadership in other areas could also support network operators' emergency response efforts. For example, the Commission should act upon the recommendation of the

Katrina Panel Report regarding the establishment of a system for uniform credentialing of response personnel.

II. THE DERECHO WAS NOT TYPICAL OF WEATHER DISASTERS IN THE D.C. METROPOLITAN AREA.

Though the Public Safety and Homeland Security Bureau understandably is concerned about outages of communication networks in the wake of the June 29, 2012 derecho, this storm was not typical of weather disasters in the D.C. metropolitan area.² A derecho is “a widespread, long-lived wind storm that is associated with a band of rapidly moving showers or thunderstorms.”³ Derechos can produce destruction similar to that of tornados, but the damage is typically directed in a straight swath.⁴ The June 29, 2012 derecho that hit the D.C. metropolitan area consisted of a system of thunderstorms combining intense lightning and rain with extreme gusts of wind between 60-80 miles per hour.⁵ The storm hit the D.C. area between 9:30 and 11:00 pm on a Friday night.⁶

² Alon Harish, *Rare ‘Derecho’ Storm Ravaged Washington Area*, ABC News, Jul. 2, 2012, <http://abcnews.go.com/US/derecho-storm-ravaged-washington-area/story?id=16696593#.UB9GTMjLxj4>.

³ National Oceanic and Atmospheric Administration, Storm Prediction Center, About Derechos, <http://www.spc.noaa.gov/misc/AbtDerechos/derechofacts.htm> (last visited Aug. 13, 2012).

⁴ *Id.*

⁵ Jason Samenow, *Derecho: Behind Washington, D.C.’s destructive thunderstorm outbreak, June, 29, 2012*, Washington Post, Jun. 30, 2012, http://www.washingtonpost.com/blogs/capital-weather-gang/post/derecho-behind-washington-dcs-destructive-thunderstorm-outbreak-june-29-2012/2012/06/30/gJQA22O7DW_blog.html (last visited Aug. 13, 2012).

⁶ *Id.*

Derechos are not common to the DC area;⁷ and even in the Midwest, where they are more likely to occur, derechos are infrequent occurrences.⁸ The damage in the D.C. area resulting from the June 29, 2012 storm was magnified by its unusual severity and the lack of advance warning. Though the National Weather Service issued alerts on June 29, 2012 for severe thunderstorms and tornados, the average lead time for the alerts was only 37 minutes.⁹ Meteorologists concede that derechos are very difficult to predict accurately and that derecho forecasting “remains one of the most challenging tasks facing operational meteorologists today.”¹⁰ Part of the unpredictability of derechos lies in the fact that a variety of factors contribute to their formation, but similar weather conditions can yield very different weather outcomes—one set of conditions may yield a severe thunderstorm while the same set of conditions yields a derecho.¹¹

The lack of advance warning and the region’s unfamiliarity with derechos prevented the normal pre-positioning of recovery assets that typically would occur in advance of a severe weather event. As discussed below, AT&T has detailed protocols to prepare for weather emergencies. For hurricanes (a weather event with wind and rain akin to or more severe than that of a derecho), AT&T’s usual pre-storm preparation involves the testing of back-up batteries

⁷ National Weather Service Forecast Office, *The Derecho of June 29, 2012*, http://www.erh.noaa.gov/lwx/events/svrwx_20120629/ (last visited Aug. 13, 2012).

⁸ Sarah Zielinski, *The D.C. Derecho of 2012*, Smithsonian.com, <http://blogs.smithsonianmag.com/science/2012/07/the-dc-derecho-of-2012/> (last visited Aug. 13, 2012).

⁹ National Weather Service Forecast Office, *The Derecho of June 29, 2012*, http://www.erh.noaa.gov/lwx/events/svrwx_20120629/ (last visited Aug. 13, 2012).

¹⁰ National Oceanic and Atmospheric Administration, Storm Prediction Center, *About Derechos*, <http://www.spc.noaa.gov/misc/AbtDerechos/derechofacts.htm> (last visited Aug. 13, 2012).

¹¹ National Weather Service Forecast Office, *The Derecho of June 29, 2012*, http://www.erh.noaa.gov/lwx/events/svrwx_20120629/ (last visited Aug. 13, 2012).

at cell sites, the distribution of portable generators, the staging of generators in safe locations for immediate deployment, and the relocation of critical equipment to less vulnerable areas.¹² In anticipation of a storm or other event expected to generate increased network traffic, AT&T will also take preventive measures to alleviate network congestion and free up network capacity. In this case, because the derecho caught the D.C. region unaware, AT&T did not have the opportunity to implement these or any other disaster preparation measures.

III. AT&T'S WIRELESS NETWORK PERFORMED WELL DURING THE DERECHO STORM.

Despite the lack of advance warning, AT&T's wireless network performed well during and after the derecho. First, there were no customer impacting failures in AT&T's E9-1-1 network components. Though some customers may have encountered difficulty completing calls, these disruptions resulted either from general service outages due to loss of commercial power to cell sites, disruptions to third-party facilities in the 9-1-1 network, or failures at the Public Safety Answering Point ("PSAP").

Second, although there were outages to commercial wireless service, these were caused by a number of factors, most of them external to AT&T's network. Widespread power outages hit the region, causing a loss of commercial power to numerous cell sites. As discussed below, however, immediately following the storm, AT&T began deploying back-up power in the form of portable generators to AT&T wireless facilities to mitigate the impact of commercial power outages. In addition, some cell sites lost interconnectivity because of disruption to third-party backhaul and transport facilities, some of which were related to power outages and some of which were related to physical damage or equipment failure. In addition to the loss of cell sites,

¹² See Comments of AT&T, Inc. at 14, PS Docket No. 10-92 (Jun. 25, 2010).

service disruptions were further exacerbated by a significant surge in call and text message volume in the D.C. region.

The derecho hit the immediate D.C. area around 9 p.m. on June 29, 2012, and as the evening progressed, call volume remained between twenty and one hundred percent higher than on a normal summer Friday night. Text message volume also increased during the storm. By 11 p.m., as the storm left the region, the number of text messages carried by AT&T was forty percent greater than on a typical Friday night. Though a network that is 100% operational can handle these call and text message traffic levels without a noticeable service impact, the increased demand placed on fewer cell sites resulted in a somewhat higher than usual level of call blocking and text message delays. Even so, as an absolute measure, communications failures were relatively few, with call blocking ranging from approximately two to four percent and text message delays ranging from approximately three to six percent throughout the night of the storm. Although these rates exceed normal levels, under the circumstances, they evidence the resiliency of AT&T's wireless network during and after a significant weather event.

IV. AT&T'S NETWORK RECOVERY RESPONSE WAS SWIFT AND EFFICIENT.

Despite the lack of advance warning to prepare for the derecho, AT&T's network recovery protocols ensured that restoration efforts were put into place swiftly. Through AT&T's Network Disaster Response ("NDR") program, AT&T has the equipment and infrastructure to respond quickly in the event of a weather-related disruption or other disaster.¹³ AT&T's NDR program is among the industry's largest and most advanced disaster response programs. Indeed, AT&T is proud to be the first private sector company in the United States to be certified under the Department of Homeland Security standards for disaster preparedness through the DHS

¹³ AT&T Network Disaster Recovery, <http://www.corp.att.com/ndr/> (last visited Aug. 13, 2012).

Voluntary Private Sector Preparedness Program.¹⁴

AT&T has invested more than \$600 million in its NDR program, which maintains an inventory of hundreds of mobile disaster response technologies distributed across the country ready for dispatch as needed in case of emergency. For example, AT&T has specially-designed equipment and technology trailers that can be quickly deployed to any disaster area to act as a virtual network office and mobile command center. AT&T also maintains a fleet of hundreds of Cells on Wheels (“COWs”) and Cells on Light Trucks (“COLTs”) that are deployed as needed to temporarily replace failed cell sites. Some of those COWs and COLTs are equipped with satellite backhaul capabilities, facilitating deployment in areas with no functioning backhaul or other connectivity. AT&T has five NDR warehouses in the U.S., which allow it to pre-position equipment in advance of expected weather disasters, and to deploy units rapidly in response to sudden events. This preparation pays off: in many cases, emergency communications vehicles can begin providing services within 30 minutes of arriving on site.

AT&T relies on batteries and a generator plan to restore power to cell sites that experience a power outage. Batteries are placed at every cell site that can accommodate them. The generator plan has two components: fixed emergency generators and portable generators. AT&T assigns permanent or fixed emergency generators to cell sites based on four key priorities. The *first* priority is to provide support for wireless system components as necessary to prevent the simultaneous occurrence of a power outage and a critical equipment failure from taking down large sections of the wireless system. The *second* priority is to support cell sites that have a history of being difficult to quickly access after storms—that is, where deploying a

¹⁴ Department of Homeland Security, Press Release: “DHS Announces AT&T PS-Prep Certification”, <http://www.dhs.gov/news/2012/03/14/dhs-announces-att-ps-prep-certification>, Mar. 14, 2012.

portable generator may be dangerous or even impossible. The *third* priority is for rural cell sites with a history of recurrent power failures lasting for extended periods of time. The *fourth* priority is for cell sites with a particularly high volume of wireless traffic, usually along major highways in rural areas.

Portable generators are staged at critical locations prior to an emergency event to allow them to be deployed to cell sites where they are needed within an hour following an event, regardless of the location of the power outage. This flexibility makes portable generators a particularly efficient means of addressing power outages. In urban areas, in particular, portable generators are more efficient than dedicated, on-site back-up power because commercial power facilities tend to be more reliable and instances of impeded access to cell sites are relatively rare, making on-site back-up power facilities unnecessary. Also, urban cell sites tend to be closer together, making it easy to position portable generators such that they can be quickly deployed where needed. But even outside urban areas, portable generators are often more efficient. In a widespread storm event, power failures at sites are localized and may be scattered. Back-up power needs accordingly are difficult to predict, so it is often more efficient to dispatch portable generators to the handful of sites where they are needed rather than to install fixed generators at all sites.

In the case of the June 29, 2012 derecho storm, AT&T's repair crews were active in the D.C metropolitan area almost immediately after the storm, ensuring swift restoration of wireless service to customers. AT&T also brought in teams from other areas of the country to assist in triaging out-of-service cell sites. AT&T recovery and repair crews traveled around the region repairing physical damage and installing and refueling back-up power generators. At the peak of the restoration effort, AT&T had deployed and activated more than 300 portable back-up power

generators to cell sites throughout the area.¹⁵ Additionally, because of cellular overlap and redundancies built-in to AT&T's network, service can be maintained or reestablished in many areas while some individual cell sites are still inactive. Because of AT&T's effective recovery plan execution, the vast majority of areas across the D.C. metropolitan region never lost service, and for many places that did, the outage lasted for no more than a matter of hours.

V. THE COMMISSION SHOULD AVOID INFLEXIBLE REGULATORY MANDATES LIKE ON-SITE BACK-UP POWER REQUIREMENTS.

The Commission should not pursue new regulatory mandates, such as on-site back-up power requirements, which would divert and dilute carrier resources that could otherwise be used more effectively in a disaster. In addition to being inefficient, an on-site back-up power mandate could conflict with other Federal, State, and local regulations. Finally, placing extended back-up power resources on-site could be unsafe or impractical for many facilities.

As discussed above, AT&T has in place a strategic plan for the deployment of back-up power facilities that includes a combination of fixed generators at certain sites and a fleet of portable generators that can be mobilized where and when most needed. Indeed, AT&T has invested billions of dollars in this reserve power infrastructure, and nationwide nearly all of AT&T's wireless sites are engineered with battery reserves and/or permanent generators. Additionally, AT&T switching centers typically are equipped with redundant permanent generators with local fuel supply to allow for more than four days of run time. By no means is AT&T alone in taking these steps: the provision of reliable service is a wireless provider's business and that wireless provider has no greater incentive than to keep operating the network that provides the service.

¹⁵ Due to the many road closures in the areas, some generator deliveries were delayed on June 30.

AT&T's back-up power strategy is based upon an assessment of local needs and characteristics, as well as an evaluation of what would be most efficient and effective for a given site. A regulatory mandate for on-site back-up facilities would eliminate a carrier's ability to conduct such an assessment and to determine, based upon actual results, the most effective way to restore all sites. Permanent on-site generators are often unnecessary in light of the state of local infrastructure, network density, and other factors. Further, an on-site back-up power mandate may conflict with a number of Federal, State, and local laws and regulations. Complying with such a rule could require the installation of fuel-powered generators at many cell sites, and many jurisdictions have adopted rules regarding the placement of power sources and storage of fuel. For example, environmental regulations restrict the placement of generators and mandate testing or other certifications.¹⁶ Local building codes and state laws also impose additional restrictions on on-site back-up power solutions, including requiring the issuance of a special permit for each location.¹⁷ In total, injecting a new Commission mandate could raise compliance costs substantially, and, in some cases, make compliance with other Federal, State, and local obligations impossible.

Besides the legal complications, many wireless facilities, such as in-building and distributed antenna system ("DAS") deployments, simply cannot accommodate on-site back-up batteries or alternative power sources due to space or load limitations. Many wireless transmitters are placed on roofs and sides of buildings or inside small rooms inside buildings. These facilities often lack the space to place and are not engineered to support heavy batteries,

¹⁶ See, e.g., Clean Air Act, 42 U.S.C. §§ 7401-7671(q); 40 C.F.R. §§ 60.4200 *et seq.*

¹⁷ See, e.g., National Fire Protection Association Standard for Emergency and Standby Power Systems, NFPA 110; International Fire Code § 608 (Stationary Storage Battery Systems); *see also* Cal. Code Regs. Title 17, § 93115 (Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines).

generators, and fuel that would be required to comply with an on-site back-up power obligation. This is especially true of DAS nodes, which are typically deployed on minimalist structures, such as utility poles, light poles, traffic standards, and camouflaged structures to reduce visual impact. In addition to potentially requiring costly redesigns and modifications to existing structures, these requirements could create serious public safety concerns. Requiring the placement of generators and fuel in or on top of public buildings or near street-level DAS deployments in downtown areas could increase the risk of fire or environmental damage. Moreover, it would increase the visual impact of DAS deployments, undermining one of the primary benefits of a DAS, reducing the opportunities for future DAS deployments. For these reasons, a one-size-fits-all on-site back-up power requirement would be impossible to implement. Instead, the Commission should allow network operators to make their own determinations about the best back-up power solution for a specific site, based upon the characteristics and requirements of each facility.

VI. COMMISSION ACTION WOULD FACILITATE NETWORK RECOVERY FROM FUTURE DISASTERS.

Commission involvement on a couple of fronts could help improve future recovery efforts. Most importantly, the Commission should make available additional spectrum resources to increase carrier flexibility to expeditiously prepare for the traffic surges that typically occur in emergencies. The Commission also should work to alleviate administrative and logistical obstacles that hinder recovery efforts.

A. Additional Spectrum Would Increase Wireless Providers' Flexibility to Adjust to Surges in Traffic Demand.

The Commission could facilitate more effective disaster recovery by making available additional spectrum resources for commercial mobile use. No additional amount of spectrum would have prevented all network problems during the derecho—nor will it prevent all such

problems in any future catastrophic event—but more spectrum resources would increase the flexibility of carrier networks and their ability to withstand sudden and unexpected surges in voice and data traffic. Wireless carriers’ network capacity can be overwhelmed by the surge in usage following a devastating weather emergency, especially one in which fixed broadband services become unavailable. Additional spectrum resources would increase carriers’ options for managing these congestion issues. For example, with additional spectrum, carriers could more efficiently fill in areas with gaps in service by adjusting signal carrier characteristics on sites that remain active.

The need for additional spectrum to facilitate disaster recovery will only increase as subscribers continue the transition to data-intensive smartphones. In this respect, the challenges of disaster recovery are a microcosm of the challenges posed by the broader spectrum crunch, and underscore the need for the Commission to pursue all avenues for making available more spectrum. To this end, the Commission should implement the spectrum-related provisions of the Middle Class Tax Relief and Job Creation Act of 2012,¹⁸ engage in long-term strategic band-planning as suggested in AT&T’s Comments in response to the Commission’s *AWS-4 Notice*,¹⁹ continue to work closely with NTIA to address the challenges to repurposing the 1755-1780 MHz band identified in the March 2012 NTIA Report,²⁰ act promptly on the recent joint proposal between AT&T and Sirius XM for a resolution to the long-standing dispute regarding the use of

¹⁸ Pub. L. No. 112-96, 126 Stat. 156 (2012).

¹⁹ See Comments of AT&T, WT Docket No. 12-70, ET Docket No. 10-142, WT Docket No. 04-356 (filed May 17, 2012).

²⁰ U.S. Department of Commerce, “An Assessment of the Viability of Accommodating Wireless Broadband in the 1755-1850 MHz Band,” March 2012, vi-xi (“NTIA Report”).

the 2.3 GHz WCS spectrum for mobile broadband use,²¹ and otherwise facilitate carriers' access to spectrum through approval of license transfers and secondary market transactions. Taking these steps to free up needed spectrum resources is the most important thing the Commission can do to promote more efficient and expeditious recovery by network operators in the wake of catastrophic emergencies.

B. Standardized Credentialing Would Hasten Carriers' Access to Areas Experiencing Service Outages.

The *Katrina Panel Report* found that limited access to affected areas was a significant impediment to communications infrastructure restoration efforts after an emergency, and recommended the establishment of uniform, standardized credentialing processes that would enable communications infrastructure providers to move repair crews into affected areas swiftly and efficiently after a disaster.²² This *Katrina Panel Report* recommendation has been acknowledged by the Commission and supported by numerous parties in previous proceedings,²³ yet it has not been acted upon. Although the SAFE Port Act amended the Stafford Act to define "essential services providers" in a manner that includes telecommunications companies,²⁴ this change has had little practical impact on credentialing challenges in the field.

²¹ See Written Ex Parte Presentation of AT&T Inc. and Sirius XM Radio Inc., WT Docket No. 07-293, IB Docket No. 95-91, GEN Docket No. 90-357 (filed June 15, 2012).

²² *Independent Panel Reviewing Impact Of Hurricane Katrina On Communications Networks, Report And Recommendations To The Federal Communications Commission* 15-17, 34 (2006) ("*Katrina Panel Report*"), available at <http://www.fcc.gov/pshs/docs/advisory/hkip/karrp.pdf>.

²³ See, e.g., Reliability and Continuity of Communications Networks, Including Broadband Technologies, PS Docket Nos. 11-60, 10-92, EB Docket No. 06-119, *Notice of Inquiry*, 26 FCC Rcd 5614, 5260 ¶ 18 (2011); Comments of AT&T at 22-23, PS Docket Nos. 11-60, 10-92, EB Docket No. 06-119 (filed July 7, 2011); Comments of the National Cable & Telecommunications Association at 13, PS Docket Nos. 11-60, 10-92, EB Docket No. 06-119 (filed July 7, 2011).

²⁴ Security and Accountability for Every Port Act of 2006 ("SAFE Port Act") § 607, Pub. L. No. 109-347, 120 Stat. 1884, 1941 (2006).

Network restoration teams continue to face challenges in accessing affected areas arising from the lack of a uniform credentialing program for communications provider restoration teams. Many states and localities have different requirements related to credentialing of telecommunications workers for access to disaster areas. For example, in some states, showing up in a logo-bearing repair truck is sufficient to gain access. In other states, network crews must carry a letter or certification from a relevant emergency preparedness authority that can be presented at each checkpoint. Still other states require prior identification of each member of the repair crew to the local or state emergency agency before access credentials are granted.

This disparity in approach can cause significant confusion because, in major disasters, AT&T will bring in crews from outside the local area to support the restoration effort. These crews may not be familiar with local credentialing practices, and the delays that result add directly to the amount of time it takes to restore vital communications services. To resolve this problem, the restoration and recovery crews of AT&T and other impacted communications companies should be classified as “first responders,” and the Commission should work with the Department of Homeland Security and State and local governments to implement a standardized credentialing process whereby those crews and any security escorts could demonstrate authorization to access disaster areas, as contemplated by the *Katrina Panel Report*.

VII. CONCLUSION

The June 29, 2012 derecho that struck the D.C. region was an unexpected weather event that caused significant damage and disruption throughout the area. AT&T’s wireless network performed well throughout and after the event, and in particular, AT&T’s E9-1-1 network components experienced no customer impacting failure. Service interruptions that occurred were the result of a failure of commercial power at various cell sites and a failure of third party facilities. AT&T’s efficient and expeditious network restoration efforts following the derecho,

including the deployment of hundreds of portable generators, reduced the impact on AT&T's customers. While the derecho storm, as an extreme, unexpected weather event, could never have been completely damage-free, the Commission should examine steps it can take to provide additional resources and flexibility to network operators to facilitate future disaster recovery efforts, such as making more spectrum available and working to develop a uniform credentialing process for restoration and repair crews. The Commission should avoid, however, imposing rigid, one-size-fits-all regulatory mandates, such as on-site back-up power obligations.

Respectfully submitted,

AT&T Services, Inc.

By: /s/ Robert Vitanza
Robert Vitanza
Gary L. Phillips
Peggy Garber
208 S. Akard St.
Dallas, Texas 75202-4206
(214) 757-3357
Counsel for AT&T Services, Inc.

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