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

In the Matter of	)	
	)	
Improving 9-1-1 Reliability	)	PS Docket No. 13-75
	)	
Reliability and Continuity of Communications Networks, Including Broadband Technologies	)	PS Docket No. 11-60
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	)	

COMMENTS OF AT&T INC.

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AT&T Inc., on behalf of itself and its affiliates (collectively "AT&T"), hereby responds to the Federal Communications Commission's ("FCC" or "Commission") Notice of Proposed Rulemaking that seeks comment on approaches to ensure the reliability and resiliency of the nation's 9-1-1 system during times of major disaster.[1]

I. INTRODUCTION AND SUMMARY

The *Derecho Report* did not identify systemic flaws in 9-1-1 communications networks that warrant industry-wide regulatory remedies or the adoption of new regulation. In fact, most providers' networks performed well and, in a few instances where that was not the case, the FCC has investigated and made remedial, carrier-specific recommendations. The communications industry invests heavily in network reliability. Indeed, competitive market forces already drive communications providers to follow industry best practices and to invest in their networks to

1 *Improving 9-1-1 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 13-75, 11-60, Notice of Proposed Rulemaking, 28 FCC Rcd 3414 (2013) ("*Notice*"). The instant proceeding was prompted by the June 29, 2012 derecho that affected the Midwest and Mid-Atlantic regions, and the follow-on report released by the Commission's Public Safety Bureau that explores the communications disruptions caused by the storm. *See* FCC PUB. SAFETY & HOMELAND SEC. BUREAU, IMPACT OF THE JUNE 2012 DERECHO ON COMMUNICATIONS NETWORKS AND SERVICES: REPORT AND RECOMMENDATIONS (PSHSB, rel. Jan. 10, 2013), *available at* http://www.fcc.gov/document/derecho-report-and-recommendations ("*Derecho Report*").

ensure continuity and restoration of communications, especially 9-1-1 communications, during and after emergencies. AT&T, for example, has invested heavily in its Network Disaster Recovery ("NDR") program. The Commission should not disrupt the virtuous cycle in which service providers compete on network reliability in favor of a prescriptive regulatory approach.

The FCC should continue its active support of, and participation in, the development and refinement of industry best practices for 9-1-1 reliability rather than resorting to prescriptive rules. While any regulatory regime should apply uniformly to all communications providers responsible for routing and delivering 9-1-1 calls to PSAPs, the Commission should ensure that providers retain the flexibility to tailor their reliability practices to the unique needs of their individual networks and the different physical environments in which they operate. With respect to the specific proposals in the *Notice*, the Commission should take the following actions:

- *Auditing.* AT&T strongly opposes the *Notice's* proposal to require that 9-1-1 Service Providers physically audit their 9-1-1 networks. As AT&T has learned through first-hand experience, physical auditing is resource-consumptive and time-consuming, and exposes physical plant to the potential for damage as equipment is exposed and manipulated. By contrast, computerized audits produce highly accurate results while avoiding the many shortcomings associated with physical audits. AT&T supports requiring 9-1-1 Service Providers to certify that they conduct computerized audits consistent with industry best practices.
- *Backup Power*. The Commission should not deviate from its current best practices approach to central office backup power. By leaving backup power decisions—including testing and maintenance—in the hands of providers, the Commission has enabled providers to develop nimble, highly-reliable back-up power strategies based

on individualized assessments of the local needs and characteristics of a given central office. A mandate to provide on-site backup power in every central office would eliminate this necessary flexibility and undermine provider efforts to provide backup power in the most efficient possible manner.

- *Network Monitoring*. The Commission also should reject proposals to regulate network monitoring capabilities. Given the proven reliability of AT&T's backup power strategy, the possibility of a network monitoring failure is remote and prescriptive regulation is unnecessary. The possibility of a network monitoring failure will continue to decrease with the transition to all-IP based networks.
- *PSAP Notification*. The Commission should enforce the Part 4 PSAP notification rules rather than adopt new requirements. If, in discrete instances, particular providers did not comply with the Part 4 PSAP notification rules, the appropriate remedy is to enforce existing rules rather than to adopt new rules for the entire industry.

Finally, the Commission should not afford the cost-benefit analysis in the *Notice* any weight in its decision-making. The analysis relies on unsupported cost estimates and fails to link the proposed regulatory requirements to the asserted public safety benefits. As a result, the analysis is irreparably flawed.

II. THE DERECHO REPORT DID NOT DEMONSTRATE THE NEED FOR INDUSTRY-WIDE REMEDIES.

The Derecho Report did not identify systemic flaws in communications networks or disaster response plans that warrant industry-wide regulatory remedies relating to 9-1-1 service. As the Report demonstrates, AT&T and many other providers performed well during and after the derecho event.[2] AT&T's wireline network experienced minimal service disruption due to the storm. Although AT&T's wireless network lost power to several cell sites in the region, AT&T promptly remedied these problems and any service outages were short. On the whole, network recovery efforts were swift, efficient, and well-coordinated, in large measure because of AT&T's commitment to network reliability, its application of best practices, and the substantial organization-wide preparation and training for such events.

While the communications industry has a strong track record of ensuring network reliability and resiliency, extraordinary events like the derecho do occur, sometimes with little or no prior warning. And when they do, they invariably impact communications networks and sometimes 9-1-1 service. But given the rarity of such events, and the fact that communications providers—through their adherence to industry best practices—already perform well during these events and have processes in place to leverage "lessons learned" to improve the response to future events, the Commission should resist the temptation to adopt prescriptive, new regulations. Instead, 9-1-1 Service Providers should retain the flexibility to design their networks and emergency response plans to meet their customers' unique needs. This flexible approach will most effectively advance continued, ongoing efforts to enhance the reliability and resiliency of the nation's communications infrastructure, especially its 9-1-1 infrastructure.

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[2] Whether intended or not, the Derecho Report gives readers the false impression that AT&T Ohio lost Automatic Location Identification ("ALI") capability for nearly four days. In reality, AT&T Ohio experienced limited, intermittent failures on ALI links over a four-day period during and after the storm, which AT&T Ohio addressed by rerouting traffic to alternative PSAPs. But no PSAP in Ohio—at least that AT&T Ohio serves—lost ALI capability for a period of four days.

III. THE COMMUNICATIONS INDUSTRY ALREADY INVESTS HEAVILY IN NETWORK RELIABILITY.

Competitive market forces already drive communications providers to follow voluntary, industry-based best practices and to invest heavily in their networks to ensure continuity and restoration of communications, especially 9-1-1 communications, during and after emergencies. Indeed, service providers actively compete on network reliability. If a provider's network is down while other networks remain online, the provider's reputation suffers and it loses customers. This is particularly true for services such as residential telephone where competition from wireless, cable, and Voice over Internet Protocol ("VoIP") providers makes switching providers cheap and painless for consumers. Ultimately, this reality—that providers need a reliable network to succeed in the competitive marketplace—drives service providers to harden their networks. As a result, today's communications networks are already extremely robust, and service providers continue to invest and innovate in this area.

AT&T, for example, has invested heavily in its NDR program.[3] This program has enabled AT&T to respond quickly to disasters such as the derecho; Superstorm Sandy; Hurricane Irene; the Joplin, Missouri tornado; tornadoes in Alabama and Tennessee; the Cumberland River flooding in Nashville; and Hurricane Ike. Indeed, AT&T's NDR program is among the industry's largest and most advanced disaster response programs. AT&T is proud to be the first private sector company in the United States that the Department of Homeland Security has

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[3] *See, e.g.*, Comments of AT&T at 7-9, PS Docket No. 11-60 (filed Aug. 17, 2012) ("AT&T Derecho PN Comments"); Comments of AT&T at 9-12, PS Docket Nos. 11-60, 10-92, EB Docket No. 06-119 (filed July 7, 2011) ("AT&T Broadband Network Reliability Comments"); Comments at AT&T Inc. at 9-16, PS Docket No. 10-92 (filed June 25, 2010).

certified for disaster preparedness through the DHS Voluntary Private Sector Preparedness Program.[4]

All told, since its inception in 1991, AT&T has invested over $600 million in its NDR program, and AT&T's NDR team members have spent over 125,000 working hours on field exercises and deployments. AT&T maintains a large inventory of disaster response equipment and technologies, including:

- Specially-designed equipment and technology trailers that AT&T quickly deploys to disaster areas to act as virtual network offices and mobile command centers.
- A fleet of hundreds of Cells on Wheels ("COWs") and Cells on Light Trucks ("COLTs") that it deploys to temporarily replace failed cell sites. Some of these COWs and COLTs also possess satellite backhaul capabilities, which facilitate deployment in areas with no functioning backhaul or other connectivity.
- Five NDR warehouses in the U.S., which enable AT&T to pre-position equipment in advance of expected weather disasters, and to deploy units rapidly in response to sudden events. This preparation pays off because, in many cases, emergency communications vehicles can provide services within 30 minutes of arriving on site.

AT&T also invests heavily in batteries and generators to ensure continuity of service. Per AT&T's own internal design standards, 100 percent of AT&T's central offices have backup batteries deployed, and 88 percent have both batteries and stationary generators.[5] AT&T also

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4 Press Release, Department of Homeland Security, DHS Announces AT&T PS-Prep Certification (Mar. 14, 2012), *available at* http://www.dhs.gov/news/2012/03/14/dhs-announces-att-ps-prep-certification.

5 *See infra* Section V.B.

relies on portable generators for use in its central offices. AT&T stages portable generators at critical locations prior to an emergency event to allow them to be deployed to central offices where they are needed as quickly as possible following an event. AT&T also scrambles its portable generators to respond to unexpected events that threaten AT&T's power supply. This flexibility makes portable generators a particularly efficient means of addressing power outages and reflects the best use of capital investments.

AT&T's extensive NDR program reflects the reality that market forces compel providers to make the investments necessary to ensure network reliability, especially 9-1-1 reliability. These efforts were undertaken in the absence of regulatory compulsion because they are important to AT&T's customers, reputation, and brand. The Commission should not disrupt the virtuous cycle in which service providers compete back-and-forth on network reliability in favor of a prescriptive regulatory approach to ensuring reliability. While well-intended, a prescriptive approach runs the risk of redirecting resources away from provider-initiated efforts, like NDR, to activities that will not appreciably improve network reliability.

IV. THE COMMISSION SHOULD ADOPT THE BROAD DEFINITION OF "9-1-1 SERVICE PROVIDER" PROPOSED IN THE *NOTICE*.

AT&T supports the Commission's proposal to broadly define the term "9-1-1 Service Provider" as a communications provider "responsible for routing and delivering 9-1-1 calls to PSAPs."[6] This definition should include all entities that provide 9-1-1 call routing, ALI database services, emergency services networks (TDM or IP), and similar services directly to a PSAP. While ILECs often fill these roles, so do other entities. As the Commission notes, the transition

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6 *Notice*, ¶ 23.

to NG9-1-1 will further broaden the range of entities that support 9-1-1 services.[7] Accordingly, the definition should include all functionally similar entities, not just ILECs.

Although 9-1-1 special services were historically provided by ILECs, this continues to change as technology evolves and 9-1-1 moves to IP-based systems. Increasingly, new broadband system designers and competitive IP-based service providers are developing and maintaining core components and entire 9-1-1 solutions. By adopting a broad definition of 9-1-1 Service Provider in this proceeding, the Commission can ensure that all entities that support 9-1-1 service also play a role in protecting the reliability and resiliency of 9-1-1 facilities. The alternative approach—adopting a narrow definition—would exempt certain entities that play a critical role functionally-similar to ILECs with respect to the delivery of 9-1-1 services, leaving a gap in the chain of 9-1-1 delivery and potentially compromising service to the public.

V. THE COMMISSION SHOULD ADDRESS NETWORK RELIABILITY AND RESILIENCY THROUGH BEST PRACTICES THAT ENABLE PROVIDERS TO MAINTAIN FLEXIBILITY.

The Derecho Report did not find systemic flaws in 9-1-1 communications networks that warrant industry-wide regulatory remedies. In fact, most providers' networks performed well during the derecho event and, where that was not the case, the FCC has investigated and made remedial, carrier-specific recommendations. AT&T attributes this success to the commitment of the FCC and the communications industry to developing and implementing reliability best practices that accommodate the individual circumstances of providers, including the different physical characteristics of the environments in which their networks are deployed and differences in network technology and architecture.

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[7] *Id.*

Despite this success, the *Notice* asks if the Commission should adopt new rules regarding 9-1-1 circuit auditing, central office backup power, network monitoring, and PSAP notification. AT&T opposes such a prescriptive approach.[8] Although the Derecho Report suggests that 9-1-1 Service Provider network reliability practices could be enhanced and refined in certain areas, this work is already ongoing through the evolution of best practices. The FCC should continue its active support of, and participation in, the development and refinement of industry best practices for 9-1-1 reliability rather than resorting to prescriptive rules.

A. The Commission Should Not Adopt Prescriptive 9-1-1 Circuit Auditing Rules.

1. AT&T Regularly Audits the Physical and Logical Diversity of 9-1-1 Circuits and ALI/ANI Links to Ensure Network Redundancy and Survivability.

Consistent with industry best practices, 9-1-1 circuit auditing is already a part of AT&T's standard operating procedure. When installing critical 9-1-1 circuits—such as 9-1-1 trunks to PSAPs and ALI/ANI links—AT&T follows industry best practices designed to ensure 9-1-1 network redundancy and survivability. These practices include maintaining an operational support systems inventory of all new 9-1-1 network equipment as it is deployed. Based on Operating Support System records, AT&T uses its Diversity Analysis Reporting Tool ("DART") to monitor physical and logical diversity across all AT&T entities and for all critical 9-1-1 circuits and ALI/ANI links.

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[8] If the Commission nevertheless elects to impose new regulatory obligations on 9-1-1 Service Providers, it should also identify federal funding sources to address the cost of compliance. In particular, the Commission should consider whether federal legislation would be necessary to assist 9-1-1 Service Providers in meeting the 9-1-1 reliability objectives identified in the *Notice*.

AT&T's computerized auditing produces highly accurate results while avoiding the many shortcomings associated with physical audits. Physical auditing is resource-consumptive and time-consuming, and exposes AT&T's physical plant to the potential for damage as equipment is exposed and manipulated. To physically audit a network element, including a 9-1-1 circuit, a technician must review engineering records (such as schematics and CAD diagrams) and trace the physical path of a discrete 9-1-1 circuit through AT&T's deployed plant. This verification must occur at all points of a circuit: (1) from AT&T's local service offices through street conduits to the street address of the PSAP; (2) within the local service offices[9]; and (3) in interoffice transport, including street conduits and intermediate central offices all the way back to the end offices where the emergency services trunks originate. Conducting such physical audits on a network-wide basis is a practical impossibility from a time and resource perspective.

AT&T has first-hand experience with the time and expense involved in physical auditing. Following Hurricane Katrina, AT&T—in an effort to gauge the value of physical auditing—attempted to physically verify its network in Ann Arbor, Michigan. It never finished. Verifying the engineering records for just one leg of Ann Arbor's multi-leg interoffice transport 9-1-1 trunk group took a full day. And this review did not even cover the central offices at each end of the leg, only the interoffice transport. Next, AT&T planned to dispatch technicians to physically trace the cable through the city. But AT&T aborted this plan once it realized the amount of time and effort the undertaking required. Requiring that 9-1-1 Service Providers do this nationwide—

[9] If an office is multi-story, then the circuit cables often pass through several floors, and the conduits between floors will be sealed for fire protection. Removing such protections to perform physical verifications would be very time-consuming and expose the network to potential damage.

and on a recurring basis, as the Commission proposes—would be a massive undertaking.[10] Such a resource commitment is not justified where nothing in the record suggests that physical auditing would yield better or different information than what already is available via the computerized auditing processes that AT&T and other providers already conduct.

Moreover, physical auditing has the potential to damage 9-1-1 facilities. Physical inspections of 9-1-1 circuits and network equipment would unnecessarily expose such equipment to physical damage and outages. A physical inspection involves accessing deployed plant on poles and in conduits, a process during which conduit may be breached and equipment damaged and exposed to the elements. Indeed, having technicians—no matter how skilled—climb among cable racks of copper wiring can easily lead to electrical shorts and grounds to live circuits. Similarly, fiber cables can also be broken due to mishandling. The potential for such damage to 9-1-1 facilities is not justified where the information to be collected by physical inspection is readily available via computerized audits.

2. 9-1-1 Service Providers Should Certify that They Conduct Computerized Audits Consistent with Industry Best Practices.

To the extent the Commission proceeds with regulation in the area of 9-1-1 circuit auditing, it should require 9-1-1 Service Providers to certify annually that they are conducting computerized diversity audits consistent with industry best practices.[11] Such a requirement should be modeled after the CPNI certification process: (1) a company director would execute a

[10] There are over 4,900 AT&T end offices that are continually verified via AT&T's computerized systems to ensure 9-1-1 network diversity.

[11] Specifically, 9-1-1 Service Providers should certify that they are complying with CSRIC BP 8-7-0532.

compliance certificate on an annual basis[12]; (2) the signatory would certify personal knowledge that the company maintains auditing procedures that adequately test for physical and logical diversity; and (3) the certification would be supported by a written statement explaining how the company conducts its diversity audits. Such a requirement would be an appropriate, incremental step to reassure the Commission that providers adhere to best practices to bolster network reliability and resiliency.

The Commission's other proposals, however—reporting, reliability requirements, and inspections—are unnecessary and impose significant expense without attendant benefit. Regarding reporting, the Commission asks if 9-1-1 Service Providers should prepare and file reports that describe how they conduct their diversity audits, the audit results, remedial actions they plan to take, and planned and ongoing efforts to improve 9-1-1 circuit auditing.[13] Forcing 9-1-1 Service Providers to report this granular information is not necessary to ensure that providers regularly carry out diversity audits. A certification would accomplish the same objective—ensuring audits occur—in a more efficient manner. Nor would the proposed reporting requirements result in improved auditing. Market forces already drive providers to conduct audits and maintain the integrity of their networks.

Similarly, imposing prescriptive auditing regulations would not serve the public interest. Adopting such requirements could actually harm network reliability by preventing 9-1-1 Service Providers from implementing solutions tailored to the unique characteristics of their networks, the differentiated physical environments—including variation in geography, climate, and

[12] Currently, officers must make CPNI certifications. For auditing certifications, directors should be permitted to sign the compliance certificate because they are better-positioned than officers to personally attest to the adequacy of a company's local auditing procedures.

[13] *See Notice* at ¶ 39.

terrain—in which they operate, PSAP capabilities, and local laws and regulations. In an environment in which providers use different equipment and network architectures, and are constantly upgrading their facilities, a one-size-fits-all approach to diversity auditing is not appropriate.

Finally, third-party inspections—like physical audits—would impose significant burdens and yield little benefit. Indeed, third-party inspectors would need to trace and review the physical paths of 9-1-1 communications—up poles and underground through conduits—through 9-1-1 Service Providers' entire networks. And, as AT&T's experience with a post-Katrina physical audit demonstrates, the information yielded by this massive undertaking largely would reflect the information providers already collect through computerized auditing. Accordingly, a requirement that 9-1-1 Service Providers certify that they conduct computerized diversity audits, consistent with industry best practices, would best further the Commission's 9-1-1 reliability objectives.

B. The Commission Should Not Deviate from its Current Best Practices Approach to Central Office Backup Power.

1. AT&T's Existing Practices with Respect to Central Office Backup Power Have Proven Highly Effective in Maintaining 9-1-1 Reliability.

The Commission should rely on industry best practices rather than impose central office backup power rules. By leaving backup power decisions in the hands of providers, the Commission has enabled AT&T and others to develop nimble, highly-reliable back-up power strategies—strategies that enabled most 9-1-1 Service Providers to effectively weather the derecho.[14]

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[14] AT&T Derecho PN Comments at 6-7; *see also* Reply Comments of MetroPCS at 4, PS Docket No. 11-60 (filed Sept. 4, 2012) (Describing backup power measures); John Hendel, *Isaac Storms Gulf Coast States, Telecom Impact Unclear*, COMM. DAILY, August 30, 2012 (C-Spire Wireless reported that its service was not significantly impaired because its nine cell sites that

AT&T maintains fixed generators in 88 percent of its central offices, backup batteries at all central offices, and a fleet of portable generators that can be mobilized on a moment's notice. Where AT&T has not installed permanent generators, the company has concluded that on-site backup battery support—coupled with AT&T's ability to effectively deploy portable generators in an emergency—is sufficient to maintain service during a commercial power outage. Additionally, at central offices without permanent generators, the company keeps larger, on-site backup batteries that can power central offices for at least eight hours and sometimes as much as 24 hours or longer. As proven during the derecho, this balanced solution gives AT&T enough flexibility to respond to almost any event that could cause power outages. By no means is AT&T alone in taking these steps: the provision of reliable service is a communications provider's business and a provider has no greater incentive than to keep operating the network that provides the service.

Although the *Notice* notes that approximately seven percent of one affected 9-1-1 Service Provider's central-office generators failed to operate properly during the Derecho,[15] this failure rate is not representative of central-office backup power nationwide among other 9-1-1 Service Providers. AT&T, for example, has 172 offices that contain 9-1-1 Tandem Selective Routers. During the last 12 months, AT&T experienced 514 unplanned commercial AC power failures at these offices lasting at least ten minutes. But *none* of these power outages, nor any of the thousands of shorter duration outages, was followed by a generator or backup battery failure that resulted in a service disruption. Indeed, each time commercial power failed, AT&T's backup

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lost commercial power continued operating on back-up power.); Comments of T-Mobile USA, Inc. at 8, PS Docket No. 11-60 (filed Aug. 17, 2012) (T-Mobile installed battery backup power at most sites, quickly deployed portable generators at critical sites and facilities and designed its network with overlapping coverage to minimize the impact of outages from the derecho).

15 *See Notice* at ¶ 44.

power systems worked as designed. Even during the derecho—where commercial power failed in 116 of AT&T's central offices—AT&T's wireline network experienced minimal service disruption due to the storm and there were no total switch outages.

AT&T's successful backup power program relies, in large part, on the company's commitment to following—and often exceeding—the manufacturer-recommend maintenance and testing schedules for its generators and backup batteries. Regarding testing, AT&T conducts both Routine Tests and Episodic Tests. Routine Tests are conducted periodically, at pre-set times; while Episodic Tests are conducted when AT&T detects a problem that requires further investigation. These tests provide AT&T with important information regarding the status of its backup power sources and alert the company to problems that require immediate attention.

AT&T collects and retains the results for all of these tests. For routine battery tests, AT&T keeps the results in paper form in a "Power Binder" located near the battery array. For engine runs, AT&T maintains records in both paper form in "Engine Run Log Books" near the engine system and in the company's electronic Off Road Equipment Management Information System. Importantly, AT&T has developed a standard format for retaining this information that uses a set of tabs, organized in the same order. This standardization provides technicians unfamiliar with a specific central office insight into the functionality of the office's backup power sources—knowledge that facilitates service restoration and maintenance during emergencies.

2. The Commission Should Not Adopt Backup Power Requirements for 9-1-1 Central Offices.

AT&T opposes any new regulation that would require that 9-1-1 Service Providers maintain backup power equipment in their central offices or that would impose new backup power testing and maintenance requirements. Providers need the flexibility to tailor backup power plans based on an individualized assessment of the local needs and characteristics of a given central office. A mandate to provide on-site backup power in every central office would eliminate this necessary flexibility and undermine provider efforts to provide backup power in the most efficient possible manner.

In addition to being unnecessary and counterproductive, new backup power requirements would be extremely expensive and potentially divert service provider resources that could otherwise be used more effectively to prepare for and respond to future emergency events. The *Notice* estimates the cost of its proposed backup power requirements at upwards of $37.5 million.[16] Yet this estimate—which already reflects a significant expenditure of resources with little attendant benefit—fails to account for the full panoply of costs involved in purchasing, installing, and maintaining permanent generators and fuel tanks. For example, the *Notice* estimates that portable generators cost $30,000 and that installing a permanent generator and fuel tank would cost $100,000. Such estimates, however, fail to account for the engineering and labor costs to install these items (including possible retrofitting of COs to accommodate the equipment), as well as ancillary items, such as switch-gear and electrical infrastructure that providers would need to add or replace in their networks to support new backup power sources.

Likewise, the *Notice* estimates the cost of battery testing at $640 per office and the cost of generator testing at $40 per office for monthly tests and $160 per office for yearly tests.[17] Again, these estimates—which assume that testing costs do not vary between offices—are unfounded. To accurately determine how much battery testing costs, the calculation must be made on a per-battery-string basis or an engine-generator-system basis for each location. The

16 *See Notice* at ¶ 57.

17 *See id.* at ¶¶ 53-54.

fuel and labor costs involved in testing backup power sources simply vary too much between offices to make it possible for the Commission to craft accurate, one-size-fits-all national cost assumptions.

Indeed, testing costs vary widely based on the size and number of engines and batteries in an office, factors which vary based on the office's size. Engine size often ranges from 10KW to 350KW for small offices and upwards of 3MW for larger offices, with some larger office also relying on multiple engines. As a result, the amount of diesel fuel needed to power these engines for monthly runs ranges from 5 to 25 gallons per engine. Similarly, the number of technicians needed to test an office—and the time they need to test the power sources and record their results—depends on the size of the battery array, the size and number of engines being tested, and the walk-through and alarm-clearing requirements for each office. The *Notice*, however, fails to appreciate that these variables make it impossible to make universal cost assumptions about backup power testing.

Instead of adopting new central office backup power rules, the Commission should rely on provider adherence to industry best practices. Unlike static rules, which require a Commission proceeding to update or modify, best practices continue to evolve based on lessons learned from the derecho and other events. Moreover, best practices afford 9-1-1 Service Providers the flexibility necessary to ensure the availability of central office backup power in the most efficient possible manner.

C. The Commission Should Reject Proposals to Regulate Network Monitoring Capabilities.

Given the proven reliability of AT&T's backup power strategy, the possibility of a network monitoring failure is remote and prescriptive regulation is unnecessary. Following the derecho, AT&T examined the susceptibility of its network to a monitoring failure in the course of an emergency event. The company concluded that the likelihood of such a failure is remote. Specifically, AT&T determined that it rarely relies on a single physical path to monitor large portions of its network. Rather, most of AT&T's 9-1-1 tandems (*i.e.*, 9-1-1 Selective Routers) have their monitoring links (*i.e.*, telemetry or communication links) transported from the central office to the alarm surveillance center via an IP-routed network with built-in diversity and reliability. As AT&T's transition from TDM to IP technology advances, the number of physical IP routers will increase and diversity in monitoring links will improve still further. Although AT&T could hypothetically experience a single point of failure compromising network monitoring, such a failure would occur only if commercial power and AT&T's backup power solution both failed. Given the proven reliability of AT&T's back-up power strategy, failure of both primary and backup power sources is unlikely regardless of the duration and intensity of an event.

Nevertheless, AT&T recently has undertaken several steps to decrease still further the potential for a network monitoring failure. First, the company has implemented a procedure of sending failure event notices to multiple Network Operations Centers ("NOCs"). AT&T's NOCs perform, among other tasks, remote monitoring of its network. This monitoring enables AT&T to detect critical facilities outages as soon as they occur and to deploy corrective resources. The practice of sending failure event notices to multiple NOCs has increased the visibility of network failures throughout AT&T's network and expedited the corrective response. Second, AT&T has updated its monitoring protocols to review correlation data from multiple monitoring sources to evaluate the status of a switch when direct communications links fail. For example, if direct communications links fail, the monitoring protocol calls for the review of

Signal Transfer Point ("STP") A-links[18] to determine whether a selective router still has active A-links and is actively processing inter-office trunk setup and release messages. Third, AT&T has implemented a long-term plan to move the remaining monitoring links from the single point of failure Datakit connections to an IP routed network. Taken together, these steps will improve AT&T's ability to monitor its network at all times, even during emergencies.

In AT&T's experience, other 9-1-1 Service Providers are taking similar steps to ensure reliable monitoring of their networks. Accordingly, new prescriptive regulation is not necessary. Service providers require the flexibility to rapidly evolve and harden their network monitoring techniques as informed by experience in the field and permitted by advances in technology. The Commission should reject proposals for prescriptive regulation that would limit or eliminate this necessary flexibility.

D. The Commission Should Enforce the Part 4 PSAP Notification Rules Rather than Adopt New Requirements.

As the *Notice* suggests that, in discrete instances, particular providers may not have complied with the Part 4 PSAP notification rules, the appropriate remedy is to enforce existing rules rather than to adopt new ones. The Commission's Part 4 rules already require PSAP notification of Network Outage Reporting System ("NORS") reportable outages. AT&T, based on consultation with its PSAP customers, provides PSAPs the information required under Part 4 as well as much of the new information the *Notice* proposes to require. However, it does not provide such information in every event or to every PSAP, instead exercising discretion based on the relevance of the information and the preferences of individual PSAPs. Adopting new rules, particularly one-size-fits-all informational requirements, would not improve compliance with the

[18] An A-link is an Access Link in the common channel signaling system that uses signaling links to convey messages between two signaling points and connects a TDM switching office to the STP.

existing Part 4 rules. However, new rules may degrade the quality and completeness of information AT&T already provides to PSAPs as a result of individualized discussions.

As a 9-1-1 Service Provider, AT&T keeps its PSAP customers well-informed during NORS reportable outages affecting 9-1-1 special facilities and other, smaller events. AT&T strives to supply helpful information to PSAPs as soon as possible and in a meaningful, clear, and useful manner. Over the years, and after countless interactions with PSAPs, AT&T has developed internal processes that it follows to coordinate with PSAPs in a way that suits individual PSAPs' needs. The current Part 4 rules allow for this flexibility and collaboration by requiring PSAP notification without being unnecessarily detailed in their prescriptions.

In the wireline and VoIP context, AT&T maintains a database with specific PSAP contacts. AT&T proactively notifies the PSAP in response to any critical outages—not just NORS reportable outages. AT&T delivers the message by phone to the PSAP contact and customizes the message based on any unique characteristics of the outage. Typically, AT&T will provide information on the nature of the outage, the impact on PSAP operations, options for re-routing, and a call back contact at AT&T.

In the wireless context, AT&T provides customized notifications for PSAPs that have submitted a request for this information. Specifically, AT&T sends the outage notification via email to the designated PSAP contact and provides information related to the outage, including the wireless sites affected, the services impacted, and the cause of the outage. The notification also includes a call back contact in case the PSAP has follow-up questions.

Despite the clear requirements of the Part 4 rules, the Commission states that after the derecho "many PSAPS reported that they were not notified of outages or received inadequate information about the scope of impacts to 9-1-1 service."[19] If such PSAP reports are accurate, the appropriate Commission response is enforcement of existing rules rather than adoption of new ones. The Part 4 rules already require that providers notify PSAPs as soon as possible regarding any outage potentially affecting a 9-1-1 special facility and convey to the PSAP "all information that may be useful to the management of the affected facility in mitigating the effects of the outage on efforts to communicate with that facility."[20] If a provider or providers has failed to comply with the Part 4 rules with respect to a particular PSAP, the Commission should open an investigation rather than adopt new rules for the entire industry.

Even if the Commission determines, notwithstanding broad industry compliance with Part 4, that reforms are necessary, none of the proposed rule changes would help PSAPs fulfill their duties or restore 9-1-1 services more quickly.[21] Requiring *immediate* notification of reportable outages, for example, is unrealistic and undesirable. Immediate notifications would almost always be incomplete, and more than likely inaccurate. In the period immediately following an outage, 9-1-1 Service Providers compile data, investigate causes, and explore solutions. Requiring providers to communicate with PSAPs before information is properly vetted and confirmed will increase the risk that providers report inaccurate or unhelpful information to PSAPs.

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19 *Notice* at ¶ 68.

20 47 C.F.R. § 4.9(f)(4).

21 The Commission proposes to require that 9-1-1 Service Providers report to PSAPs "the nature of the outage, the estimated number of users affected or potentially affected, the location of those users, the actions being taken by provider to address the outage, the estimated time at which service will be restored, recommended actions the impacted facility should take to minimize disruption of service, and the sender's name, telephone number and email address at which the sender can be reached." *Notice* at ¶ 70.

Moreover, AT&T and other 9-1-1 Service Providers already supply to PSAPs much of the additional data the Commission proposes to require. Providers do not, however, supply such information in response to every reportable event. Rather, providers tailor the information supplied based on needs and preference of individual PSAPs. When information is irrelevant or unwanted, providers exercise the discretion to exclude such information from the notifications. In the wireless context, for example, providers often cannot accurately predict how many users would be affected or potentially affected by an outage, and it is not clear how this information would help a PSAP. Accordingly, wireless 9-1-1 Service Providers generally do not supply such information to PSAPs.

VI. THE COST-BENEFIT ANALYSIS IN THE *NOTICE* FAILS TO JUSTIFY THE PROPOSED REGULATORY OVERHAUL.

While AT&T appreciates the Commission's attempt to quantify the real-world consequences of its proposal, the Commission's cost-benefit analysis is irreparably flawed. The Commission's methodology appears to be: (1) identify a problem (*e.g.*, single points of failure in 9-1-1 circuits); (2) propose a regulatory solution (*e.g.*, circuit auditing); (3) estimate the cost of implementing a solution; and (4) compare the estimated cost to estimated benefit in terms of lives saved.[22] The Commission's analysis, however, relies on unsupported cost estimates and fails to link the proposed regulatory requirements to the asserted public safety benefits. Accordingly, the flawed cost-benefit calculations in the *Notice* should be ascribed no weight in the Commission's decision-making.

A. The Commission's Cost Estimates Are Irreparably Flawed.

The Commission's cost-benefit analysis relies on estimates of implementation costs without offering adequate evidence to support those estimates. Due to environmental differences

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22 *See, e.g.*, *Notice* at ¶¶ 41-43.

and the historical evolution and construction of networks in particular areas, the costs and extent of necessary network upgrades can vary substantially from area to area. Moreover, regional differences in labor costs, permitting, and other regulatory challenges result in different costs for different areas. Because of these variations, and in light of the lack of empirical support, the specific cost estimates offered by the Commission for its regulatory proposals lack any solid foundation.

Further, even if, as the Commission supposes, an average nationwide cost for each audit, backup power upgrade, enhanced monitoring procedure, and notification process could be established, the Commission's formula fails to account for a variety of costs. Such costs include, but are not limited to, significant internal costs to 9-1-1 Service Providers (*e.g.*, training and developing new internal process) and the lost opportunity cost of reallocating funds from initiatives with a consumer or commercial purpose to compliance with new regulation. The Commission also fails to consider costs external to providers, such as those borne by PSAPs in implementing the Commission's proposals. Because the cost estimates contained in the *Notice* lack support and grossly understate the true range of potential costs, the Commission's cost-benefit analysis is irreparably flawed.

B. The Commission Fails To Link The Proposed Regulatory Requirements to the Asserted Public Interest Benefits.

The *Notice* fails to make a causal link between the regulatory remedies proposed and the asserted public interest benefits. The *Notice* assumes that the changes proposed by the Commission, if adopted, would save lives. But the *Notice* offers no evidence to support this assumption. In particular, the *Notice* fails to identify any specific harm to an individual—much less a death or serious injury—caused as a result of a failure to reach emergency services promptly during the derecho. Importantly, while the *Derecho Report* attempts to illustrate that concerns about communications failures are more than "theoretical or abstract" by discussing examples of injuries that occurred during the derecho, the *Report* concludes in the same paragraph that "it does not appear that the large-scale failures of service providers' 9-1-1 network infrastructure were factors" in those events.[23]

Indeed, the only concrete example provided in the *Notice* of how improvements in existing telecommunications services supporting 9-1-1 could lead to more lives saved comes from a 2002 study on the impact of improved location information on the effectiveness of 9-1-1 response in Pennsylvania.[24] But this study does not apply here. The *Derecho Report* and the *Notice* seek input on the merits of potential new rules relating to diversity auditing, backup power, network monitoring, and PSAP notification. Improving location accuracy is not a focus of this proceeding.[25]

Moreover, even if the Pennsylvania report addressed the same issues under consideration here, the empirical data in the 2002 study dates from 1994 and 1996—nearly two decades ago.[26] Service providers have made huge strides in the provision of automatic location information since the mid-1990s, including the implementation of Enhanced 9-1-1 in wireline and wireless

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[23] *Derecho Report* at 4.

[24] *See Notice*, n.100 (*citing* Susan Athey & Scott Stern, *The Impact of Information Technology on Emergency Health Care Outcomes*, 33 THE RAND J. OF ECON. 399 (2002) *available at* http://kuznets.fas.harvard.edu/~athey/itemer.pdf ("*Cardiac Study*") (last visited April 29, 2013)).

[25] Rather, efforts at improving the accuracy of automatic location information are well-underway in various other Commission fora, including at the CSRIC, in which all major 9-1-1 Service Providers are active participants. *See* Federal Communications Commission, Communications Security, Reliability and Interoperability Council III, http://www.fcc.gov/encyclopedia/communications-security-reliability-and-interoperability-council-iii (last visited April 29, 2013).

[26] *Cardiac Study* at 2.

networks, and the widespread integration of AGPS functionality into mobile phones. Further improvements in location information are imminent with the introduction of NG9-1-1 and future adoption of innovative location technologies.[27] Therefore, even if the Pennsylvania Study covered similar ground as this proceeding, its nearly twenty year-old data and conclusions would be of little value in 2013.

Finally, the *Notice* fails to establish that expanded regulation of communications companies would actually achieve the desired result in terms of improvements to the 9-1-1 system. Emergency communications is a multi-faceted system of systems in which—in addition to 9-1-1 Service Providers—electric utilities, public safety agencies, state and local governments, and consumers each play a role. Failings by any of these entities—such as widespread commercial power outages—may impact 9-1-1 communications as much, or more, than missteps by communications providers. Where 9-1-1 Service Providers already provide a high level of reliability, the Commission should be careful to avoid requiring additional investment beyond the point of diminishing returns with respect to improved public safety outcomes.

VII. CONCLUSION

The derecho did not expose systemic flaws in 9-1-1 communications networks that warrant industry-wide regulatory remedies or new regulations. Accordingly, the Commission should continue its active support of, and participation in, the development and refinement of industry best practices for 9-1-1 reliability rather than resorting to prescriptive rules. If the Commission nevertheless elects to take regulatory action, such action should: (1) apply equally to all entities that facilitate 9-1-1 service; and (2) preserve 9-1-1 Service Providers' flexibility to

[27] *See, e.g.*, CSRIC III Working Group 3, *E9-1-1 Location Accuracy*, *Leveraging LBS and Emerging Location Technologies for Indoor Wireless E9-1-1* (Mar. 14, 2013), *available at* http://www.fcc.gov/bureaus/pshs/advisory/csric3/CSRIC_III_WG3_Report_March_%202013_LeveragingLBS.pdf.

tailor their network reliability and resiliency efforts to their individual circumstances. Finally, the Commission should not afford the cost-benefit analysis in the *Notice* any weight in its decision-making. The analysis relies on unsupported cost estimates and fails to link the proposed regulatory requirements to the asserted public safety benefits.

Respectfully submitted,

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