

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of

Improving the Resiliency of Mobile Wireless
Communications Networks

PS Docket No. 13-239

Reliability and Continuity of Communications
Networks, Including Broadband Technologies

PS Docket No. 11-60

COMMENTS OF AT&T

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I. INTRODUCTION AND SUMMARY

In September 2013, the Commission released a Notice of Proposed Rulemaking ostensibly aimed at “encourag[ing] competition to improve the resiliency of mobile wireless communications networks during emergencies.”¹ Under this proposal, competition would be *encouraged* by “provid[ing] consumers with a reasonable ‘yardstick’ for measuring how well mobile wireless networks maintain service during disasters.”² While well intended, we believe the proposal to require posting “the percentage of . . . network sites in each county that are operational sites” during a DIRS-activation period is unnecessary, counter-productive, and potentially harmful. Moreover, we believe the proposed metric would not provide consumers useful information and may in fact be misleading. For these reasons, among others, we file these comments on behalf of the AT&T facilities-based CMRS provider, AT&T Mobility.

The foundational premise of the Notice is that carriers would make their networks more reliable and resilient if the Commission fostered competition by collecting and publishing operational-site percentages derived during DIRS-activation periods (essentially, during and after natural and man-made disasters). The wireless market, however, is already fully competitive; the Commission needn’t step in to provide additional incentive. Besides, we believe this proposed regulation is unnecessary because carriers are fully motivated today by competition to make their networks reliable and resilient, hardening them against storms and other events that might tend to disrupt communications or impact facilities. In short, competition exists and is working to make networks reliable and resilient.

The foundational premise also misses the mark because, instead of fostering competition during disasters, the Commission should be fostering cooperation. Today, when disaster strikes, carriers are cooperating between and among themselves to restore service, if necessary, and to

¹ *Improving the Resiliency of Mobile Wireless Communications Networks; Reliability and Continuity of Communications Networks, including Broadband Technologies, Notice of Proposed Rulemaking*, PS Dockets Nos. 13-239, 11-60, FCC 13-125 ¶ 1 (rel. Sept. 27, 2013) (*Notice*).

² *Id.*

address the needs of consumers and local, state, and federal governments. This cooperative spirit, we contend, strengthens networks and addresses public safety and disaster recovery concerns. For the Commission to inject a government-sponsored performance metric into this public safety space would turn disaster recovery into a contest between and among carriers. Cooperation might disappear, and carriers would focus on post-disaster statistics and on how FCC-sponsored ratings could be used in future advertising. The better policy is to engender cooperation in preparation for, during, and in recovery from disaster events.

Finally, the proposed metric is meaningless. *First*, consumers don't make purchasing decisions based on performance during disasters, which are relatively rare. Rather, they make purchasing decisions based on their everyday experiences of network reliability—where they live, work, and play. *Second*, wireless networks are much more dynamic than the proposed metric would have the public believe. Carriers are able to adjust to certain network impairments, and, as a result, their subscribers may never detect a service-impacting problem. Moreover, carriers, like AT&T Mobility, stand ready with equipment and other facilities—like ECVs, COWs, COLTs, satellite COLTs, and generators—to respond quickly to a disaster. These emergency facilities provide continuity of service. Competition, and not government regulation, makes that possible today. And the Commission's proposed metric actually penalizes carriers for having such equipment and facilities available. *Third*, given the way wireless facilities are deployed, the proposed metric doesn't actually provide any real snapshot of how a carrier's network performed during a DIRS-activation period. Carriers seeking to game the system could easily report operational-site percentages that, while accurate, give a false impression of how well their network performed or of the subscribers' actual service experience.

AT&T respectfully requests that the Commission reconsider its proposal to require carriers to report operational-site percentages during DIRS-activation periods.

II. DISCUSSION

A. The State of Competition

1. Competition between and among mobile wireless providers is already at a fever pitch, making efforts to encourage it unnecessary.

Central to the Commission’s proposal to require CMRS providers to post a percentage of operational sites by county during DIRS-activated periods is the presumption that this will create competition among carriers to make their networks more resilient. Yet, imposing regulations that are designed to encourage carriers to compete with one another is a bit like passing a law encouraging people to inhale oxygen. Anyone reading newspapers, watching television, listening to radio, walking past wireless providers’ retail stores, or otherwise just paying attention could not help but be aware of the high level of competition between and among mobile wireless providers.³ And while these carriers compete with regard to all aspects of their service—price, customer service, coverage, device selection, data speeds—network quality and reliability have always been among the hottest topics in comparative advertising by leading carriers.⁴ The suggestion that the Commission has to pass rules to enhance competition at any level in the wireless market for any purpose is simply contrary to the undisputed facts.

³ With over 315 million wireless customers in America (*i.e.*, greater than 100% penetration rate), the low-hanging fruit that once was the wireless customer has long ago been plucked, and carriers are in red-hot competition not just for new customers but also to keep existing customers and to entice their competitors’ customers to migrate. <http://www.ctia.org/resource-library/facts-and-infographics/archive/more-wireless-subscriber-connections-than-us-population>. See also: *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; etc.*, Sixteenth Report, 28 FCC Rcd 3700 ¶¶ 244-45 (2013). See also for example: THE NEW YORK TIMES, “Carriers Step Up Battle for Customers,” Section B, page 1 (Jan. 9, 2014).

⁴ See for example, AT&T Mobility TV ad plugging network reliability: <http://www.youtube.com/watch?v=PRXVL8wSkys&list=SPxgUkHTvXNoYSV9JR0UdjV-YEYaHvYssQ>

2. The Commission's proposed regulation is unnecessary because the fully competitive market is already providing the necessary incentive for carriers to make their networks reliable and resilient and to provide the wherewithal to quickly address any outages when they might occur.

There is no serious doubt that the wireless market is fully competitive. In order to remain competitive, wireless carriers, including AT&T Mobility, have spent and will continue to spend billions of dollars improving their networks and preparing for natural and man-made disasters of all sorts. And they have done this in the absence of regulations or other government intervention because the market demands it.

In this competitive landscape, AT&T Mobility has a two-fold approach to network continuity: (1) making its networks resilient and resistant to physical damages; and (2) planning for and equipping itself for disaster recovery. In previous filings, AT&T has explained at great length the steps it has taken to make its networks resilient and to protect them from physical damage.⁵ AT&T's protects its facilities from physical damage by designing them to meet or exceed industry standards for continued operations during a wide range of natural and man-made disasters. This design focus includes reference to specific conditions inherent to the local environment (*e.g.*, frequency of earthquake activity, susceptibility to hurricanes, likelihood of wild fires, *etc.*). At a minimum, AT&T requires that critical equipment comply with Network Equipment-Building System (NEBS) guidelines developed originally by Bell Labs and then later maintained by Telcordia Technologies, Inc., now Ericsson. Moreover, AT&T is a leader in the measurement of network reliability by adapting the manufacturing model of defects per million (DPM) to the measurement of reliability in its own networks. Through the DPM measurement, AT&T is able to rapidly and accurately determine the root cause of a network outage and to hold the responsible party (*e.g.*, vendor, supplier, process, or business unit) to account with the aim of avoiding similar events in the future. In short, in the absence of regulation, AT&T has already committed substantial resources—money, processes, and staffing—to successfully make its networks, including its wireless networks, more reliable and more resilient.

⁵ See for example: Comments of AT&T, PS Dockets Nos. 11-60, 10-92, 06-119, pp. 3-12 (filed July 7, 2011) (*AT&T July 2011 Comments*).

Recognizing that, while the aim is to be outage free, it is inevitable that outages will occur, especially during disaster events on a par with Superstorm Sandy and Hurricanes Isaac and Katrina, AT&T has become the leader in planning for and recovering from any outage, including outages on a large scale caused by disasters. In past filings, AT&T has referenced its investment in its Network Disaster Recovery (NDR) program whereby AT&T “strives to deliver the highest levels of service, quality, and reliability under all circumstances.”⁶ This commitment to NDR continues today unabated. Under the NDR program, AT&T stands at the ready to mobilize staff and equipment by pre-staging and distributing mobile disaster response technologies across the country. For example, AT&T has specially-designed tractor-trailers, which act as virtual network offices and mobile command centers, called Emergency Communications Vehicles (ECVs), and self-contained mobile cell sites (*e.g.*, cells on wheels, COWs, and cells on light trucks, COLTs) and satellite COLTs, which employ a satellite link to provide voice and data service within 30 minutes of arriving on site.⁷

Additionally, AT&T maintains other emergency equipment and logistical support for quick deployment, such as portable generators, industrial chillers, dewatering pumps, diesel, gasoline, and compressed natural gas fuel tanker capability, and mobile local fuel storage cells. AT&T maintains a robust, best-in-class disaster recovery program, prepared to set up a “M.A.S.H.”-style tent city, with thousands of military-grade Meals Ready to Eat (“MRE”) and complete life, health, and safety support for AT&T’s army of restoration personnel. When a telecommunications disaster strikes, it doesn’t necessarily leave any supporting infrastructure, so AT&T is prepared to operate a self-sufficient restoration camp, whenever necessary. AT&T was

⁶ See *id.*, pp. 10-12. See also: <http://www.corp.att.com/ndr/>

⁷ An example of this can be seen in AT&T’s response to the EF-5 tornado that struck Moore, OK, on May 21, 2013. http://www.corp.att.com/ndr/deployment_2013_moore_tornado.html.

the first company in the country certified by Department of Homeland Security under the PS-Prep™ standards.⁸

In spite of all these efforts and investments, the clear implication from the Notice is that the Commission believes that outages occurring during events like Superstorm Sandy and Hurricanes Isaac and Katrina are evidence that wireless networks need to be made even more reliable. To expect wireless networks—which rely on multiple vendors, have facilities that necessarily must be exposed to the elements, and depend on commercial power from independent utilities—to be outage-free during massive storms like these, however, would be unreasonable. During both Superstorm Sandy and Hurricane Katrina large swaths of AT&T Mobility’s service area was flooded, and was buffeted by hurricane-force winds and rain. These forces of nature take their toll.⁹ Even though AT&T Mobility’s networks are designed to be highly reliable, they are not invincible, and no degree of gold plating will make them so. In view of these realities, wireless carriers, in addition to making their networks highly reliable, prepare for disasters and are quickly able to deploy emergency staff and facilities to fill the gaps while they repair the damage. In this regard, these carriers, like AT&T Mobility, have an excellent record.

Since Hurricane Katrina, AT&T has had to respond to multiple natural disaster events—some could be planned for in advance—*e.g.*, Hurricanes Rita (2005), Ike (2008), and Irene (2011)—others hit without prior warning—*e.g.*, tornadoes in Alabama, Tennessee, Missouri, and

⁸ <https://www.dhs.gov/news/2012/03/14/dhs-announces-att-ps-prep-certification> (“The Department of Homeland Security (DHS) announced today that AT&T Inc. has become the first private sector company to be certified to DHS-selected standards under the Voluntary Private Sector Preparedness Program. PS-Prep™”)

⁹ For perspective, the Commission should remember that as a result of Hurricane Katrina and the failure of the levees protecting New Orleans, LA, on August 31, 2005, at least 80% of the city was under water—in some areas under as much as 15 feet of water. See: http://en.wikipedia.org/wiki/Effects_of_Hurricane_Katrina_in_New_Orleans During Superstorm Sandy, the storm surge was approximately 14 feet above Mean Low Water, which caused flooding in many Manhattan tunnels and damaged electrical equipment. A large section of lower Manhattan was inundated. New York and New Jersey beach communities suffered even worse devastation. See: http://en.wikipedia.org/wiki/Effects_of_Hurricane_Sandy_in_New_York

Oklahoma, as well as flash floods and wildfires. In addition, AT&T Mobility had to respond to the tragedy in Boston, MA when terrorists bombed the city's annual marathon.¹⁰ Depending on the needs of the local communities affected, AT&T puts its NDR team to work quickly deploying ECVs and COLTs and other recovery and support equipment.¹¹

These pre- and post-disaster preparations and efforts are in large part the result of knowledge gained from prior events. Each event, whether man-made or natural, adds to the carriers' knowledge base and, using that added information, carriers work to harden their network defenses—analyzing what was efficacious, where weaknesses in the network might exist, how staff and facilities could be better deployed, *etc.* In short, the Commission cannot reasonably extrapolate from past events how carriers might perform during future disasters because future performance may very well be improved due to lessons learned from prior storms.¹²

And those lessons aren't necessarily learned from the personal experience of any one carrier. Carriers work in tandem through government-sponsored and industry-sponsored forums to discuss and agree on best practices and other lessons learned as a result of post-event reviews of how networks performed and how well disaster recovery was handled. But all of this takes place today in the absence of government regulation because the carriers are sufficiently motivated by a highly competitive market to make their networks as reliable as reasonably possible.

¹⁰ The bombing in Boston did not impair any AT&T owned facilities. Rather, although AT&T Mobility was prepared for projected additional usage during the marathon, especially at or near the finish line, the terrorist event spiked wireless usage even more than reasonably projected, placing a super-extraordinary burden on the AT&T Mobility network. As part of its response, AT&T Mobility opened its Wi-Fi network in the affected area to allow everyone, including non-AT&T subscribers, to access the Internet.

¹¹ These special recovery facilities are in addition to AT&T's substantial local technical resources.

¹² Of course, there are other events that provide carriers with learning experiences that help improve its responses to disaster. For example, carriers can learn a great deal about their networks when they launch service on additional spectrum.

In sum, the foundational premise upon which the proposed rule is built—*i.e.*, that the Commission needs to create competition among carriers to build more reliable and resilient networks—is incorrect. Such government intervention is unnecessary because the fully competitive wireless market is already providing more than enough incentive to address the Commission’s stated goal.

B. When Disaster Strikes, the Commission Should Encourage Cooperation

1. Today, during disasters, facilities-based CMRS carriers are cooperating to mitigate any impairment in service.

In the face of disaster, AT&T has a long history of being a good corporate citizen. AT&T has stepped in when disaster strikes to lend a hand to local communities and to other communications providers—often with little or no fanfare. Other carriers act similarly. This altruism is made easier when carriers like AT&T aren’t confronted with an economic incentive to act otherwise. The Commission’s proposal to have carriers report the operational-site percentages during DIRS-activation periods and then have the Commission publish that data in order to “provide consumers with a reasonable ‘yardstick’ for measuring how well mobile wireless networks maintain service during disasters” is just the kind of economic incentive the Commission should avoid, because it effectively places a high tax on good corporate citizenship, dissuading carriers from cooperating during a disaster when cooperation is needed most.

A recent example of carriers cooperating during a disaster is the AT&T Mobility and T-Mobile decision to open their networks to each others’ customers to allow roaming after the devastation inflicted on the New York-New Jersey area because of Superstorm Sandy. Due to this act of cooperation, consumers instantly had significantly more access to wireless communications than they otherwise would have—all without paying roaming fees. But because the benefits of such cooperative activities do not fall equally on each carrier, injecting government-sponsored performance metrics into the mix might motivate carriers to analyze the relative advantages of such cooperation in light of their next government published raking. This

calculus might dissuade the carrier getting less out of the deal from cooperating at all.

Consumers would suffer from such an elevation of metrics over cooperation.

There are numerous examples of cooperation and good corporate citizenship in disaster recovery efforts. For example, as a result of Superstorm Sandy in 2012, AT&T agreed to lease an environmentally conditioned equipment trailer to tw telecom holdings inc. (tw telecom), in order to let tw telecom recreate a hub that was damaged during a flood. AT&T moved this equipment from Georgia to New York without a contract just to respond to tw telecom's request for assistance. Also in 2012, AT&T leased a large generator and related equipment to FLAG Telecom Network USA Limited (FLAG) to support its submarine cable landing station when it lost commercial power.

When Newfane, Vermont, was flooded during Hurricane Irene, its local wireline telephone company, Fairpoint Communications, was effectively put out of service for months. AT&T moved in with a satellite COLT to provide temporary wireless service to a community that would have been otherwise cutoff from telephone service. AT&T also distributed its Go Phone products to allow the citizens of Newfane to access the temporary wireless coverage.¹³

Also during Hurricane Irene, AT&T was asked to support a FEMA base camp in Margaretville, NY, an off-network town of 596 in the Catskills. While performing this service, a flash flood nearly cost AT&T an expense and critical asset.¹⁴ In addition to FEMA, AT&T has deployed satellite COLTS to off-network locations in response to oil spills, mine disasters, and law enforcement. And, to help communities by helping the electric utility, AT&T has deployed additional COWs to provide expanded capacity at electric utility staging yards to support the surge of mutual aid line crews and tree trimming contractors.

¹³ The community of Newfane was essentially without prior wireless coverage.

¹⁴ AT&T has also provided special services and facilities to local governments and FEMA, providing ECVs, generators, WiFi and VoIP service, and cell phones during other events. Especially in Superstorm Sandy, countless requests were fielded from New York City for a variety of supporting assets and services; AT&T responded whenever possible. AT&T has provided such support during recent hurricanes, and various floods and wildfires.

These acts are exactly the sort of cooperation that the Commission and other levels of government ought to be encouraging among and between carriers during emergencies. The Commission's present proposal to make disaster recovery a competitive arena, however, flies in the face of a policy to encourage cooperation during disasters.

2. The Commission's proposal would turn disaster recovery into a contest, undermining carrier-to-carrier cooperation.

Competition in the wireless market is high, and this is a good thing. Among other things, competition is one of the drivers that impel wireless carriers to make their networks more reliable and resilient. Yet, when disasters strike, carriers set aside the emphasis on competition and cooperate to mitigate the impacts of the disaster on consumers. The Commission's proposal—*i.e.*, to have carriers report on the percentage of operational sites in counties under DIRS activation and releasing those percentages to the public—may radically alter this dynamic by throwing a competition monkey wrench into the cooperation gears of disaster recovery. It doesn't require too much imagination to see how such FCC-sponsored data could be incorporated into advertisements comparing network reliability between carriers. While carriers themselves often release updates on the status of network availability and repairs after a disaster, the more official and "scientific-looking" data published on a government web site would in all likelihood be viewed differently, and given more weight, than those company-provided updates. Said another way, we think that the by-county, operational-site percentage discussed in the Notice—which we deem to be both an unnecessary and misleading metric (see discussion below)—would be given unmerited weight simply because the FCC published it and not by virtue of its inherent value.

If such data were promoted by the Commission as a way to compare networks or used by providers in future advertising, then, during disasters, instead of focusing on cooperation when needed, carriers would be thinking of how their operational-site percentages might compare with others after the disaster has passed. This would change the dynamic from cooperation among carriers to help a community through a disaster, to a contest, with each carrier motivated by

Commission regulation to act only in its own self-interest to guarantee that its percentages are viewed as better than those of their competitors, even though, as we discuss below, the metric is likely meaningless as a relative measure of network reliability. After the disaster has passed, it is easy to envision carriers using attack ads of the sort used in political campaigns, citing the FCC-sponsored data to support misleading comparisons of network reliability between carriers.

Perception is reality in advertising.

From a policy perspective, the Commission should be encouraging *cooperation* during disasters, not gamesmanship, because cooperative efforts will benefit the public interest and more rapidly improve the performance of all networks during and after a crisis.¹⁵ At the very least, the Commission should avoid creating rewards merely for padding statistics that, as discussed below, are likely to have little to do with actual network reliability or resilience.

C. The Proposed Metric is Meaningless

1. Consumers rely on everyday network performance to evaluate service quality, which is a better metric than performance during a disaster.

It's just common sense that the best gauge of a carrier's actual performance is the *everyday* experience consumers themselves have, not how a carrier's network might perform during the rare, extraordinary disaster.¹⁶ Consumers are fully cognizant of and sensitive to a carrier's actual everyday performance where the consumer lives, works, and plays (*i.e.*, do they experience dropped calls, are calls clear, do connections take too long). Carriers are not in a position to deceive consumers about their performance because consumers are fully capable of judging the quality of that service on their own.

¹⁵ The proposal in the Notice strikes us as contrary to the Commission's efforts to foster industry cooperation in the event of an emergency. *See for example*, CSRIC IV Working Group 9, "Infrastructure Sharing During Emergencies."

¹⁶ Events like Superstorm Sandy and Hurricane Katrina are indeed rare. Apart from the unusual factors that combined to make those storms unique, hurricanes generally are still relatively infrequent in any given season. While not typical, during the 2013 Atlantic hurricane season, there were only two hurricanes, neither of which was deemed "major," and none of which made landfall in the United States. See:

http://en.wikipedia.org/wiki/2013_Atlantic_hurricane_season#Hurricane_Humberto

What's more, during an actual disaster, they know how well their carrier's network is performing by comparing it to their everyday experience. They can also contemporaneously compare their service with those of neighbors similarly situated. This actual experience of the network's performance is a better "yardstick" than some county-wide percentage of operational sites, which may tell the public little about actual network availability. In short, the personal service experience that tracks where the consumer actually lives, works, and plays is a better measurement of reliability for the consumer than some percentage based on "outages" that may not be actually service affecting.¹⁷

Because consumers are already conscious of carriers' general reputations for reliability and take such reputations into consideration when making purchases, carriers are sensitive to their reputations.¹⁸ By means of advertising, through public discourse (including news, entertainment, and social media), and by word of mouth with friends and family, a carrier's reputation for reliability is already widely disseminated. Certainly, as competitors, carriers themselves are not shy about touting their network's reliability or casting aspersions on the reliability of others. All of this means, among other things, that the proposed metric is unnecessary. But what is worse, as explained below, it is likely to be meaningless and in many cases outright misleading.

2. The proposed metric fails to take the dynamic nature of the wireless network into consideration and presupposes more disruption than the consumer may actually experience.

It is beyond dispute that outages can be service affecting. This is why in a highly competitive market, like the wireless market, carriers invest to make their networks reliable, and, when the inevitable outage occurs, to respond quickly to eliminate or mitigate any network

¹⁷ We write "outages" in quotes because of the dynamic nature of the wireless network—a feature of the wireless network that may mean that the consumer is still able to access the network and complete a call even though some part of the network is impaired.

¹⁸ AT&T's own consumer surveys indicate that network reliability is high on the list of reasons that drive consumer choice of provider.

impairment. But not all outages are equal. For example, in densely populated urban areas, the loss of a few “network sites” may have no real call completion impact (*e.g.*, carriers can adjust power at neighboring sites and reroute traffic); whereas, in a rural area, loss of one network site may be significantly disruptive. In the wireless network, carriers can compensate for temporary outages in many cases, thereby effectively eliminating or greatly mitigating the effect of network impairment. By way of example, during Hurricane Katrina, Cingular (now AT&T Mobility) lost one entire mobile telephone switching office (MTSO) to flooding. To address this, Cingular leveraged capacity in another New Orleans MTSO and re-homed traffic from there to facilities in Richardson, Texas.¹⁹ Operational cell sites that would have otherwise been stranded were capable of handling live traffic even though the local network was missing an entire MTSO.

The point is that the one-for-one calculation that forms the basis for the operational-site percentage, which is at the heart of the Commission’s proposal, masks this dynamism. Consequently, the metric itself is highly misleading if the aim of the metric is to alert consumers to network’s reliability because the network could be engineered with such dynamism in mind—a dynamism that would address the odd outage that would end up in the calculation. Carriers that engineer their networks to be dynamic and to mitigate or eliminate the impact of a site outage would be in fact punished by the Commission for their foresight and investment by requiring them to report that outage as if it were an indication that the network is not reliable, when in fact it is.

3. The proposed metric distorts the carrier’s performance during disaster events, making the metric a poor yardstick for the Commission’s stated goal.

In these comments, we have already discussed the extraordinary preparations carriers, like AT&T Mobility, take to respond to disasters. Briefly, however, they include pre-positioning facilities to use to provide a continuity of service in the case of outages. The facilities include COLTs and COWs. Yet, under the proposed rule, carriers would have to count COLTs and

¹⁹ Re-homing is the act of moving operational cell sites from one MTSO to another. This allows those operational sites to process live traffic.

COWs as network sites when stating the percentage of operational sites within the affected county.²⁰ The result of this is to effectively punish carriers for preparing to handle the inevitable outage that will occur during disaster events on a par with Superstorm Sandy or Hurricane Katrina.

By way of a simple illustration, if a facilities-based carrier had 100 network sites within a DIRS-activated county and ten of those sites experienced outages, the proposed calculation for the percentage of operational sites would be, without more, 90% (*i.e.*, 90 of 100 sites are still operating). Yet, if the carrier were to effectively replace all ten of those impaired sites with temporary equipment (*e.g.*, COWs or COLTs), the carrier would still have to post an operational site percentage of 91% because the total number of network sites for the county would have increased from 100 to 110 (*i.e.*, 100 of 110 sites are still operating). This requirement doesn't reward the carrier for pre-disaster preparation and the time and expense expended to respond. Moreover, the metric gives the consumer the false impression that the carrier's network is unreliable in a disaster, when, in fact, the carrier's network was very reliable because, among other things, it included disaster preparations allowing a continuity of service.

The metric is also susceptible to more than a little serendipity. To be a fair comparison, the various carriers' facilities with an affected county would have to be deployed uniformly. Typically, they are not. This means that elements of a disaster—where a storm hits, what areas are most affected, where the power company loses power, which roads are impassible or bridges are swept away, *etc.*—might impact one carrier more than another, raising yet more questions about the fairness and accuracy of the metric.

²⁰ See Notice, Appendix A, Proposed Rules, definition of “network site,” p. 29 (“Any land station controlled or operated by a Commercial Mobile Radio Service (CMRS) provider and used by it during periods of normal operation to provide CMRS; *any land station deployed by such provider on a temporary basis during a period of activation of the Disaster Information Reporting System (DIRS) for the purpose of providing CMRS*; or any land station not under the operation or control of such provider but actually used by it to provide CMRS during a period of DIRS activation, under a roaming agreement or other arrangement.”).

The inherent unfairness is compounded by the different strategies carriers use to serve their customers. For example, over the next couple of years, AT&T Mobility has a strategy to deploy a large number of small cells in its network. These small cell sites are mostly planned for augmenting in-building coverage. By their very nature, small cells are not intended to have the same type of infrastructure as macro-cells. With these small cell sites, the company cannot install permanent generators or even large back-up battery packs in the middle of a high-rise building; consequently, they are intended to rely primarily on commercial power. If these small cell sites are treated exactly like macro-cells under the Commission's proposed rules (and it appears that they would be), then it would unfairly penalize AT&T Mobility and give customers a false impression of the company's network reliability.

To illustrate, consider a county with 100 macro-sites and 200 small, in-building cells, if due to a loss of commercial power, the company were to lose all 200 small cells, the operational-site metric would be 33% (*i.e.*, 100 operational macro-cells out of 300 total network sites).²¹ Yet, in spite of this loss, all of the company's customers in the affected county would likely still have excellent service because all of the macro-cells would still be in-service. The majority of subscribers would not even notice if all 200 small cells were out of service, but the FCC-sponsored metric would provide a misleading picture of the company's overall service quality level.²²

Likewise carriers could theoretically game the system with small cells by, for example, keeping 200 small cells in service in one small pocket of the county and have all 100 macro-sites out of service. In this example, the in-service metric would be 66% (*i.e.*, 200 small cells

²¹ Naturally for the purposes of this hypothetical, we are presuming no macro-cells sustained a reportable outage.

²² In spite of the vulnerabilities of small cell sites to the vagaries of commercial power, we assert that the Commission shouldn't penalize carriers for deploying them as they enhance the customers' service. The loss of small cell sites during a disaster might not present serious service issues as the office buildings in which they are typically deployed are usually evacuated during extended commercial power outages due to, among other things, the loss of ventilation and water pressure and the loss of elevator service.

operational out of a total of 300 network sites). Yet, unlike the prior example, few people in the county would be happy with their service, but the FCC-sponsored metric would look good compared with another carrier that lost all of its macro-cells and had no small cells deployed. Likewise, if it were simpler to restore the small cells, a carrier could quickly improve its operational site metric without providing a better customer experience or a more resilient and reliable network.

The metrics could also distort the way carriers respond to cell site outages. Today carriers attempt to restore cell sites based on priority, which may include access to public safety, hospitals, *etc.* These sites may be more difficult to restore, and, under the pressure to have a good operational-site percentage, carriers could instead focus on getting more sites in service to improve their metric without concern for the actual customer experience.

III. CONCLUSION

AT&T respectfully requests that the Commission consider these comments in its deliberations on this matter.

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