Before the
Federal Communications Commission
Washington, D.C. 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
	)	

NOTICE OF PROPOSED RULEMAKING

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Comment Date: (60 days after date of publication in Federal Register)
Reply Comment Date: (90 days after date of publication in Federal Register)

By the Commission: Acting Chairwoman Clyburn and Commissioner Rosenworcel issuing separate statements; Commissioner Pai dissenting and issuing a statement.

I. INTRODUCTION

1. In this *Notice of Proposed Rulemaking* (*NPRM*), the Federal Communications Commission (Commission) considers measures to promote transparency to consumers as to how mobile wireless service providers[1] compare in keeping their networks operational in emergencies, which could in turn encourage competition to improve the resiliency of mobile wireless communications networks during emergencies. Specifically, we seek comment on a proposal to require facilities-based Commercial Mobile Radio Service (CMRS) providers to submit to the Commission for public disclosure, on a daily basis during and immediately after major disasters, the percentage of cell sites[2] within their networks that are providing CMRS.[3] These disclosures would be made with respect to each county in the designated disaster area. We seek comment on whether public disclosure of this information, which can be derived from information many providers already report to the Commission voluntarily,[4] could provide consumers with a reasonable "yardstick" for measuring how well mobile wireless networks maintain service during disasters. We also seek comment on whether other measures of service outages may be appropriate, and on certain other approaches to resiliency.

[1] The requirements proposed in this *NPRM* would apply to such providers only insofar as they provide Commercial Mobile Radio Service (CMRS), as that term is defined in Section 20.3 of the Commission's rules. *See* 47 C.F.R. § 20.3. We seek comment on this proposed scope in Section III.D.1. below.

[2] As used herein, the term "cell site" applies not only to sites deployed in cellular-based network configurations, but to any land station used to deploy CMRS.

[3] The proposed rule is set forth in Appendix A.

[4] Mobile wireless providers, among other providers, report such information in the Commission's Disaster Information Reporting System (DIRS). *See* The FCC's Public Safety and Homeland Security Bureau Launches Disaster Information Reporting System (DIRS), *Public Notice*, DA 07-3871 (PSHSB rel. Sept. 11, 2007) (*DIRS Public Notice*).

2. In particular, we seek comment on the following issues:

- Whether the proposed reporting and disclosures would provide consumers with useful information for making comparisons about mobile wireless products and services;
- Whether such disclosures, by holding providers publicly accountable, could incentivize improvements to network resiliency while allowing providers flexibility in implementing such improvements;
- Whether such information would be useful to policymakers at state and local levels;
- Whether the proposed disclosures comport with "smart disclosure" principles[5];
- Whether the proposed disclosure would lead to adverse unintended consequences for consumers and mobile wireless providers;
- Whether the Commission should consider other measures, including alternative informational disclosures, performance standards or voluntary measures, or refer issues of what information would be helpful to consumers to an advisory committee before acting.

II. BACKGROUND

3. In recent years, a number of major storms, including Superstorm Sandy in 2012, have impaired mobile wireless service in affected regions. Hurricane Isaac hit the Gulf Coast, resulting in more than twenty percent of area cell sites out of service in the aggregate in the designated reporting area.[6] Superstorm Sandy disabled at its peak more than twenty-five percent of cell sites in 158 counties in all or part of ten states and the District of Columbia.[7] The most extensive wireless service impairments from Superstorm Sandy were heavily concentrated in New Jersey and in the New York City metropolitan area, where millions of residents found themselves without reliable and continuous access to mobile wireless communications throughout the storm and its aftermath.[8] Several counties had outages more than double the twenty-five-percent figure for the larger area—some much more—and for the State of New Jersey, all of which was included in the reporting area, aggregated cell site outages were on the order of forty percent. Of course, some service disruption may be unavoidable during major disasters, and surges in demand present added challenges. However, data that mobile wireless service providers submitted to the Commission via the Disaster Information Reporting System (DIRS)[9] and in follow-up meetings with Public Safety and Homeland Security Bureau staff revealed that, as during previous storms such as Hurricane Isaac and others before that, service impacts during Superstorm Sandy and in its aftermath were not evenly distributed among mobile wireless service providers. Moreover, the operational choices and practices of different mobile wireless service providers may account for much of this variation. For example, practices regarding the provision of back-up power supplies at otherwise

[5] *See infra* Section III.C.

[6] *See* The FCC's Public Safety & Homeland Security Bureau Announces the Activation of the Disaster Information Reporting System in Response to Hurricane Sandy, *Public Notice*, DA 12-1733 (PSHSB 2012) (listing the counties subject to DIRS activation during Superstorm Sandy).

[7] *See* Statement of FCC Chairman Julius Genachowski, Superstorm Sandy Field Hearing, New York, NY, and Hoboken, NJ (Feb. 5, 2013), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0205/DOC-318754A1.pdf.

[8] *See, e.g.*, Kevin McCoy, *et al*., *Wireless Service Improves in Sandy-affected Areas*, USA Today (Nov. 1, 2012), *available at* http://www.usatoday.com/story/tech/2012/11/01/sandy-cellphones-service-charging/1675189/ ("Wireless coverage is gradually recovering in the areas affected by Hurricane Sandy, but millions of Northeasterners are still grappling with spotty or no cellular connections.").

[9] *See infra* para. 7 (providing an overview of DIRS and the Network Outage Reporting System (NORS)).

similar cell sites appear to vary among mobile wireless service providers, which may contribute to the ability of some mobile wireless service providers to provide more continuous and reliable service during the storm than others.

4. To address these types of questions, the Commission launched a *Notice of Inquiry* (*Reliability NOI*) in 2011 to "initiate a comprehensive examination of issues regarding the reliability, resiliency and redundancy of communications networks, including broadband technologies."[10] The Commission asked a broad range of questions in the *Reliability NOI* on how to ensure continuity of communications services during major emergencies such as large scale natural and man-made disasters. For example, it sought comment on the need for reinstatement of emergency back-up power requirements of some form on communications providers "to ensure adequate levels of service continuity during major emergencies."[11] It also asked questions about the impact of inadequate backhaul redundancy on network operations during major emergencies.[12]

5. More recently, in the months following Superstorm Sandy, the Commission held field hearings in New York and New Jersey to further explore the communications impacts of Superstorm Sandy and consider lessons learned. It then held a follow-up field hearing in California to look, in part, at emerging technological solutions for improving communications during such emergencies.[13] Among the concerns raised at these hearings was the lack of information made publicly available during Superstorm Sandy about the operational status of communications networks and the progress being made to rectify service outages.[14]

6. In a May 13, 2013 letter to the Commission, Consumers Union urged the Commission to conduct a rulemaking proceeding to "establish appropriate metrics for measuring a wireless carrier's network performance," such as "the number of a wireless carrier's non-functioning cell towers in each county" within a disaster area, "and the percentage of the carrier's cell towers in that county that the number represents."[15] Further, it urged the Commission to disclose such information to the public and to use it "to set a schedule for phasing in improved performance standards [for wireless networks] as rapidly as practicable, with appropriate incentives for achieving them and appropriate penalties for unexcused failure to achieve them."[16] In *ex parte* presentations filed July 17 and July 19, 2013, respectively, CTIA-

[10] *See* Reliability and Continuity of Communications Networks, Including Broadband Technologies, *et al*., *Notice of Inquiry*, PS Docket No. 11-60, *et al*., 26 FCC Rcd 5614, 5615 ¶ 2 (2011) (*Reliability NOI*).

[11] *See id*. at 5621-22 ¶¶ 23-25.

[12] *Id*. at 5622-5623 ¶ 26.

[13] *See* FCC Announces Details Regarding the First Post-Superstorm Sandy Field Hearing, Scheduled for February 5, 2013, *Public Notice*, DA 13-140 (PSHSB rel. Feb. 1, 2013); FCC Announces Date and Location of the Second National Hearing on Network Resilience and Reliability, *Public Notice*, DA 13-245 (PSHSB rel. Feb. 20, 2013). Archived video recordings of both field hearings are available on the FCC website, http://www.fcc.gov/events/past.

[14] At the New York hearing, City of New York representative Rahul Merchant recommended that telecommunications providers, like electrical utility companies, provide information "on when the infrastructure is down" and "when the telecommunications systems are going to be up." Transcript, Superstorm Sandy Field Hearing in New York City, at 42, PS Docket 11-60 (posted Feb. 28, 2013). At the New Jersey hearing, Chuck Bell of Consumers Union commented that "going forward more public reporting of key metrics regarding service levels could be helpful" by promoting "transparency in holding telecom providers accountable" for the performance of their networks during emergencies. Transcript, Superstorm Sandy Field Hearing in Hoboken, New Jersey, at 62, PS Docket 11-60 (posted Feb. 28, 2013).

[15] *See* Letter from George P. Slover, Consumers Union, to Chairman Julius Genachowski, *et al*., Federal Communications Commission at 2 (May 13, 2013) (Consumers Union Letter) (filed by the Public Safety and Homeland Security Bureau in PS Docket 11-60 on July 5, 2013).

[16] *See id*.

The Wireless Association (CTIA) and the Competitive Carriers Association (CCA) argued that the Commission should gather more information before proceeding to a rulemaking on such matters.[17] PCIA-The Wireless Infrastructure Association (PCIA) filed an *ex parte* presentation on August 5, 2013, raising similar concerns.[18]

7. More generally, the Commission relies on periodic reporting from communications providers to gauge network reliability.[19] Part 4 of the Commission's rules, established in 2004, requires, *inter alia*, mobile wireless service providers to apprise the Commission of network outages that exceed certain quantitative thresholds, dependent on the type of services provided.[20] The Commission collects this information in its Network Outage Reporting System (NORS), and then uses the information to identify larger trends and vulnerabilities in the nation's communications infrastructure. In addition, the Commission operates DIRS, created in 2007, which is activated during emergencies to collect near "real-time" status information from mobile wireless and other providers to improve the situational awareness of federal agencies, including the Federal Emergency Management Agency (FEMA), and streamline emergency response.[21] Reporting in DIRS is voluntary; however, the Commission generally suspends the otherwise mandatory NORS reporting obligations of DIRS participants throughout periods when the latter system is fully activated. Information reported to the Commission in either of these reporting systems is afforded a presumption of confidential treatment, a policy the Commission adopted to protect filing parties from competitive harm and prevent terrorist targeting of vulnerable communications assets.[22]

8. To complement these efforts, the Commission has tasked federal advisory committees, chiefly the Communications Security, Reliability and Interoperability Council (CSRIC), with developing and recommending industry best practices to advance, among other objectives, the "security, reliability, and interoperability of communications systems."[23] CSRIC has developed and recommended to the Commission specific actions to facilitate industry-wide improvements in these areas. The Commission generally encourages mobile wireless service providers, a significant cross-section of which participate in CSRIC, to implement these recommended best practices within their networks to the extent technically and economically feasible. The Commission relies primarily on NORS and DIRS reporting to assess whether network reliability best practices are being effectively implemented or are in need of

[17] *See* CTIA-The Wireless Association, *Ex Parte* Filing, PS Docket 11-60 (filed July 17, 2013) (arguing that the Commission should gather more information on "consumers' information needs during and after disasters, the type of information metrics that may be useful to consumers in those circumstances, and effective means of conveying that information to them" before proceeding to a rulemaking such as Consumers Union recommends); *see also* Competitive Carriers Association, *Ex Parte* Filing, PS Docket 11-60 (filed July 19, 2013).

[18] *See* PCIA-The Wireless Industry Association, *Ex Parte* Filing, PS Docket 11-60 (filed Aug. 5, 2013).

[19] *See* Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruptions, CC Docket No. 91-273, *Report and Order*, 7 FCC Rcd 2010 (1992) (adopting service disruption notification requirements for wireline common carriers); New Part 4 of the Commission's Rules Regarding Disruptions to Communications, EB Docket No. 04-35, *Report and Order and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 16830 (2004) (*Part 4 Report and Order*) (extending notification requirements to wireless and satellite providers and establishing Part 4 of Title 47 of the Code of Federal Regulations to house the Commission's outage notification requirements).

[20] *See Part 4 Report and Order*.

[21] *See DIRS Public Notice*.

[22] *See* 47 C.F.R. § 4.2; *Part 4 Report and Order*, 19 FCC Rcd at 16855 ¶ 45; *DIRS Public Notice* at 2. *See also infra* para. 59-60.

[23] *See* CSRIC IV Charter, *available at* http://www.fcc.gov/encyclopedia/communications-security-reliability-and-interoperability-council-iv.

refinement.[24] The Technological Advisory Council, which is chartered to advise the Commission more broadly on technical matters, is also exploring approaches for improving broadband network resiliency.[25]

III. DISCUSSION

9. Promoting the "safety of life and property" through the use of radio communications is part of the Commission's foundational mission.[26] Whether, and how quickly, emergency calls get through and a first responder arrives might make the difference between life and death,[27] so it is imperative that the public be able to reliably access 911, including with wireless phones. The proceeding we initiate today to improve the resiliency of mobile wireless networks builds upon information gathered through extensive prior efforts to address the resiliency of mobile wireless networks. As noted, these efforts began with the Hurricane Katrina panel in 2006, have included the adoption and subsequent withdrawal of mandatory back-up power requirements, followed by our 2011 *Reliability NOI* that sought broad and detailed comment on back-up power and other elements of network resiliency. We have gathered further information in our inquiry into the June 2012 "derecho," and in our Superstorm Sandy field hearings held earlier this year. While we proceed to consideration of the proposals contained in this *NPRM*, we note that CTIA, CCA and PCIA have raised concerns about some of the proposals. We seek comment on these concerns in the discussion that follows. Ultimately, our objective is to ensure that any disclosure rules adopted in this area are tailored to the needs of consumers, do not impose undue burdens on service providers, and provide incentives that are most likely to lead to improvements in network reliability during emergencies.[28]

A. Costs and Benefits of the Proposal

10. We seek to determine the benefits to consumers and other communications users that would result from each proposal and any associated burden on mobile wireless service providers. We therefore request comment on a range of questions that will help us to weigh the costs and benefits of the reporting obligations we propose, as well as the alternative measures we put forward for consideration. For each cost or benefit addressed, we ask that commenters provide specific data and information such as actual or estimated dollar figures, including a description of how the data or

[24] *See Part 4 Report and Order*, 19 FCC Rcd at 16855 ¶ 46 (stating that "the analytical substance of [NORS reports] is essential to the development and validation of best practices").

[25] *See* Federal Communications Commission, Technological Advisory Council, http://www.fcc.gov/encyclopedia/technological-advisory-council (identifying "Resiliency in a Broadband Network" as one of the TAC's five current areas of focus).

[26] *See* 47 U.S.C. § 151.

[27] One study of cardiac emergencies in Pennsylvania found that E911 adoption reduced the risk of mortality within six hours by sixty percent and the risk of mortality within forty-eight hours by thirty-five percent. *See* Susan Athey & Scott Stern, *The Impact of Information Technology on Emergency Health Care Outcomes*, January 2002, at 32, *available at* http://kuznets.fas.harvard.edu/~athey/itemer.pdf.

[28] We note that while the proceeding we initiate today focuses primarily on the reliability of the wireless networks that are used in disasters to *originate* most calls to 911, in a related proceeding, the Commission is considering measures to improve the reliability of the wireline facilities that are needed to complete calls to 911 call centers, even those that originate on mobile wireless devices. *See* Improving 9-1-1 Reliability, *et al*., PS Docket Nos. 13-75, 11-60., *Notice of Proposed Rulemaking*, 28 FCC Rcd 3414, 3417 ¶ 5 (*911 Reliability NPRM*) (drawing upon findings of the Bureau's Derecho Report, 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*)). The *911 Reliability NPRM* seeks comment on a wide range of regulatory approaches, including options under which certification or reporting requirements could serve alone or in conjunction with more direct regulation of 911 network practices. That proceeding also broadly considers how to maintain the reliability of 911 services in the migration to Next Generation 911 platforms.

information was calculated or obtained and any supporting documentation.[29] All comments will be considered and given appropriate weight; vague or unsupported assertions regarding costs or benefits generally will receive less weight and be less persuasive than the more specific and supported statements.

11. Quantifying specific benefits and costs of implementing the proposed rule and other proposals involves challenges. These costs and benefits can have many dimensions, including and beyond cost and revenue implications for industry and financial benefits to consumers. We also must consider other less tangible benefits, such as the value of more informed consumer choice and the value of any lives saved or health outcomes improved due to the completion of calls for help due to infrastructure hardening that could result from the increased competitive pressure to deliver reliable service during natural disasters and immediately thereafter. To assess the expected burden on providers, we seek comment on the nature and magnitude of the costs. In complying with the Paperwork Reduction Act, we recently estimated the annual reporting costs to be approximately $190,000 for all providers inputting wireless county cell site information in DIRS.[30] That figure, however, comprised an estimate for DIRS reporting for considerably more information than is sought here. Moreover, because these carriers are already reporting needed information, they have already incurred the startup costs associated with any reporting system.

12. We estimate that there are fewer than fifty additional providers that are not currently reporting DIRS data. Moreover, we believe that the non-reporting providers mostly are very small companies that typically serve only one or two counties. Therefore, even if we were to require all wireless providers in the disaster areas to file transparency reports-- which is a question on which we are seeking comment-- we expect the number of additional reporting providers to be below fifty and the counties involved to be relatively few. We estimate the total annual reporting cost for these providers to be $78,000, consisting of three elements. First is a $2,000 cost incurred if fifty providers each spend a half hour, at $80 per hour, to create and enter a user identification when first logging in to our website (*i.e.*, 50 x 0.5 x $80 = $2,000). Second is a $4,000 cost incurred if fifty providers each spend a half hour, at $80 per hour, to file the initial reports on two counties (*i.e.*, 50 x 0.5 x $80 x 2 = $4,000). Third is a $72,000 cost incurred if fifty providers each spend an hour, at $80 per hour, to verify and file daily follow-up reports on the two counties for nine additional days of DIRS reporting (*i.e.*, 50 x 1 x $80 x 2 x 9 = $72,000). We seek comment on these estimates and their underlying assumptions. We are particularly interested in receiving carrier data that would improve the accuracy of these estimated costs.

13. To assess the expected benefits, we seek comment on the nature and magnitude of the benefits of the proposed rule. If public disclosure increases competitive pressure sufficiently to encourage providers to significantly harden their networks, we assume a likely result will be at least one life saved every five years.[31] We also assume a life has a statistical value of $9.1 million.[32] We seek

[29] To the extent that filers believe that any of this information could be considered confidential, please see instructions for filing materials under a claim of confidentiality, *infra* Section III.F.4.

[30] FCC Staff estimated this figure based on: the assumption of two Superstorm Sandy-type of major events per year in the nation; the actual number of data reports containing the percentage of cell towers operational per county during the DIRS activation for Superstorm Sandy; and the estimated time required for providers to prepare DIRS reports (*i.e.,* the same time reported in the Paperwork Reduction Act submission for DIRS). *See* OMB Control No. 3060-1003.

[31] There is reason to believe, however, that network improvements may save far more than one life every five years assuming that there are wireless calls that would reach 911 sooner or might not otherwise reach 911 at all. A 2002 study in Pennsylvania found that, by speeding up the ambulance response time to cardiac emergencies, the adoption of E-911 resulted in the saving of 3.6 lives each year in each of the sixty-six Pennsylvania counties.[31] Susan Athey & Scott Stern, The Impact of Information Technology on Emergency, The RAND Journal of Economics, Vol. 22, No. 3 (Autumn 2002), *available at* http://kuznets.fas.harvard.edu/~athey/itemer.pdf (last accessed on Aug. 27, 2012) (Cardiac Study). The study examined 19,746 ambulance rides resulting in an emergency hospital admission in sixty-six Pennsylvania counties during 1994 and 1996. It found a -.012 reduction in the forty-eight-hour mortality rate for (continued….)

comment on these two assumptions because, if they are reasonably accurate, they imply public disclosure would produce an annual benefit of $1.82 million (i.e., $9.1 million divided by 5) in lives saved.

14. Moreover, the potential benefits of public disclosure may not be limited to the value of human lives saved if infrastructure is enhanced. Medical outcomes also may be improved and considerable pain and suffering avoided when emergency service providers are able to respond to E-911 calls. The total medical benefits from preserving E-911 services may be substantially greater than the value of lives saved. Further, another benefit of public disclosure may be to enable consumers to better assess the performance of mobile wireless service providers during major emergency events and, thus, enable consumers to make informed decisions that conform better to their preferences when selecting mobile wireless products and services.[33]

15. An alternative way to estimate the potential benefits of public disclosure is to consider the value of services lost each year in storms. Superstorm Sandy, for example, caused a substantial loss of wireless services. We believe that had providers done more to improve infrastructure prior to Superstorm Sandy, a significant number of cell site outages could have been prevented, allowing a substantial number of wireless subscribers in the path of the storm to avoid loss or serious impairment of service.[34] We cannot readily determine the value of that lost service, because we cannot know the value of being able to call more easily loved ones and friends, among others, during the Superstorm and in the days following the destruction. Nor can we know the value of more easily reaching firemen, police, repairmen, and other first responders.

16. We can estimate, however, a floor value for lost consumer surplus, a portion of which could have been saved had outages been avoided. Given the average-revenue-per-subscriber data reported by the four major wireless providers for the DIRS reporting counties, we estimate very conservatively that cell-site outages connected to Superstorm Sandy caused a loss of service for which subscribers had paid $25.8 million.[35] This $25.8 million could represent what subscribers would normally

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cardiac patients due to E911. Given the study's estimate of 304 cardiac incidents each year per, 273,000 people (the average population size of a Pennsylvania county), this implies that E911 adoption resulted in 3.648 (*i.e.*, -.012 x 304) lives saved per 273,000 people. Because E-911 services respond to a wide variety of life-threatening emergencies in addition to cardiac emergencies, the total lives saved in Pennsylvania were almost certainly substantially larger than 3.6 lives per county. We note that the Pennsylvania study focused only on the lives saved by shortening response times rather than the lives saved by providing wireless service where it may not be available at all, which is among the issues we are addressing here.

[32] Earlier this year, the U.S. Department of Transportation completed a review of the technical literature on the Value of a Statistical Life (VSL). It concludes, in a February 28, 2013 Department of Transportation Memorandum, that the VSL is now $9.1 million. *See* http:/www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life.

[33] A CTIA study identifies numerous other benefits from wireless services and estimates the nationwide consumer surplus created by such services. *See* Roger Entner and David Lewin, "The Impact of the US Wireless Telecom Industry on the US Economy: A Study for CTIA-The Wireless Association" (Sept. 2005), available online at http://files.ctia.org/pdf/Report_OVUM_Economy.pdf. CTIA updates many of those estimated benefits in its 2008 study. *See* Roger Entner, "The Increasingly Important Impact of Wireless Broadband Technology and Services on the U.S. Economy: A Follow up to the 2005 Ovum Report on the Impact of the US Wireless Telecom Industry on the US Economy" (2008), *available at* http://www.ctia.org/advocacy/research/index.cfm/AID/10538. *See also* Roger Entner, "The Wireless Industry: The Essential Engine of US Economic Growth" (2012) ("2012 CTIA Study").

[34] *See supra* para. 3 (discussing the uneven distribution of service impairments among providers during Superstorm Sandy and observing that the operational choices of providers may have accounted for some of these discrepancies).

[35] This estimate conservatively assumes that the subscribers in a county suffered a loss or significant impairment of wireless services that is only one-fourth of the cell-site outage percentage for that same county. It also assumes that the average daily price of wireless service reasonably reflects the value of using the service—and hence the lost

(continued….)

pay for the lost services, not what those services were worth to them. The net benefit of a good to consumers (*i.e.*, the consumer surplus) can easily exceed what they pay for it. Indeed, a 2012 CTIA study estimates that at the end of 2010, consumer surplus was 3.08 times what consumers pay for wireless service.[36] Based on these payments estimates and the CTIA study, the value of the lost service during Superstorm Sandy alone was at least $77.4 million (*i.e.*, $25.8 million x 3 = $77.4 million). Because this loss represents the value of such services during normal weather conditions, it likely substantially understates the loss of value during (and a few days after) a storm, at which time the value of access to emergency services and ability to connect with family and friends may be much greater. We invite comment on this analysis and the reasonableness of its underlying assumptions.

B. The Growing Reliance of the American Public on Mobile Wireless Networks

17. Mobile wireless communications are becoming increasingly central to the day-to-day lives of Americans. In its annual Mobile Competition Reports,[37] the Commission has documented the tremendous growth of the U.S. mobile wireless sector, which now supports over 300 million user connections.[38] Mobile data traffic in particular "increased 270 percent from 2010 to 2011" in the United States and "has more than doubled each year for the past four years,"[39] during which time mobile wireless service providers have continued to upgrade and expand their networks and offer their customers an increasing array of "smartphones" and data-centric devices, such as tablets and e-readers. As mobile wireless technologies have continued to proliferate and evolve, consumers of these services have become increasingly likely to "cut the cord"—to live without residential wireline telephone service, as thirty-eight percent of American households already do.[40]

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value when calls are blocked—on each day of the storm. If correct, these assumptions imply that subscribers in the reporting counties lost $5.5 million worth of service on October 30, 2012, the first day of the disaster. We find that, during the first five days, they lost $19.9 million and, during the entire eleven-day reporting period, they lost $25.8 million. Most of the loss occurred during the first five days because, after that period, most affected counties outside of New York and New Jersey regained service. Our methodology for obtaining these results consists of several steps. First, using DIRS data, we determined the percentage of cell sites out of service for each of the reporting counties and for each of the eleven days for which this data was reported. Second, we reduced that outage percentage by three-fourths to very conservatively estimate the loss or serious impairment of service incurred by subscribers. Thus, we assumed for purposes of this calculation that a twenty-percent outage, for example, represents only a five-percent loss or serious impairment of wireless services. Third, we multiplied that percentage by the number of subscribers in each county, data that was obtained from the Numbering Resource Utilization and Forecast reports filed by providers engaged in the provision of wireless telecommunications services. In this way, we estimated the number of subscribers without service or with seriously impaired service. Fourth, we determined a daily average revenue per subscriber (ARPS) by dividing the median monthly average revenue for the four major wireless providers by thirty. Fifth, we multiplied that daily ARPS times the number of impaired subscribers to estimate the value of service lost in each of the affected counties on each of the eleven days. Finally, we summed those figures over all the reporting counties to obtain a loss figure for the entire area affected by Superstorm Sandy.

[36] *See* 2012 CTIA Study at 37.

[37] *See, e.g.*, Federal Communications Commission, Sixteenth Annual Mobile Competition Report, FCC 13-34 (2013) (2013 Mobile Competition Report), *available at* http://www.fcc.gov/document/16th-mobile-competition-report; Federal Communications Commission, Fifteenth Annual Mobile Competition Report, FCC 11-103 (2011), *available at* http://www.fcc.gov/reports/mobile-wireless-competition-report-15th-annual.

[38] *See* 2013 Mobile Competition Report at 155-56 ¶ 244; *see also* CTIA-The Wireless Association, Wireless Quick Facts, http://www.ctia.org/advocacy/research/index.cfm/aid/ 10323 (last visited June 10, 2013).

[39] 2013 Mobile Competition Report at 12.

[40] *See* Stephen J. Blumberg and Julian V. Luke, *Wireless Substitution: Early Release of Estimates from the National health Interview Survey, July-December 2012,* National Center for Health Statistics, Centers for Disease Control, June 2012, *available at* http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201306.pdf) (last visited June 21, 2013).

18. This growing reliance on wireless communications has brought these technologies to the forefront of emergency response. As CTIA noted in its comments on the *Reliability NOI*, "[d]uring the aftermath of major disasters, many individuals rely on wireless as their sole means of communication because of its mobile nature and the speed in which carriers restore service to affected areas."[41] With an increasing percentage of 911 calls—already measured at 75 percent within the State of California[42]—originating on wireless networks, the need for reliable wireless service during emergencies is a major public safety priority.

19. While consumers value overall network reliability and quality in selecting mobile wireless service providers, they may not be able to compare how well different mobile wireless service providers' networks withstand and recover from disaster conditions. As previously noted, the information made available to the Commission on a non-public basis following Superstorm Sandy and Hurricane Isaac revealed that not all mobile wireless service providers' networks fared the same during the storms, and preparatory efforts and investments to harden networks may account for some of this discrepancy. We thus seek comment on whether mobile wireless customers have adequate means of assessing the resiliency and reliability of mobile wireless networks in disaster conditions, and whether they have reliable basis for evaluating and comparing the network resilience of different mobile wireless service providers.

C. The Use of Informational Disclosures to Improve Consumer Choice

20. We seek comment in this *NPRM* on the reporting and disclosure of information to enable consumers to compare how well various mobile wireless networks are able to withstand and recover from disaster conditions. There is precedent in the telecommunications sector and in other industry contexts for using informational disclosures of this sort to enhance consumer welfare and drive product and service improvements.[43] A significant recent initiative along these lines is the Commission's Measuring Broadband America (MBA) Program, under which the Commission tests the actual network speeds delivered to consumers by major wireline broadband providers and discloses its findings in a series of reports.[44] Those providers that have tested favorably have touted the reports' findings in public

[41] *See* Comments of CTIA-The Wireless Association, PS Docket 11-60 at 2-3 (July 7, 2011).

[42] *See* Federal Communications Commission, 911 Wireless Services Guide, http://www.fcc.gov/guides/wireless-911-services. *See also, e.g.*, State of California, California 9-1-1 Emergency Communications Branch, Summary of Wireless Calls by PSAPs (illustrating that between December 2011 and March 2013, 75 percent of 911 calls statewide came from wireless phones) (filed in the instant proceeding on the record on July 17, 2013).

[43] *See* Archon Fung, *et al*., Full Disclosure: The Perils and Promise of Transparency 12-13 (2007) (providing an overview of eighteen diverse "targeted transparency" programs); Daniel E. Ho, *Fudging the Nudge: Information Disclosure and Restaurant Grading*, 122 Yale L.J. 574, 577 (2012) (surveying the use of informational disclosures across numerous industries).

[44] *See* Office of Engineering and Technology and Consumer and Governmental Affairs Bureau, Federal Communications Commission, Measuring Broadband America: A Report on Consumer Wireline Broadband Performance in the U.S. (2013), *available at* http://www.fcc.gov/measuring-broadband-america/2013/February; Office of Engineering and Technology and Consumer and Governmental Affairs Bureau, Federal Communications Commission, Measuring Broadband America: A Report on Consumer Wireline Broadband Performance in the U.S. (2012), *available at* http://www.fcc.gov/measuring-broadband-america/2012/july; Office of Engineering and Technology and Consumer and Governmental Affairs Bureau, Federal Communications Commission, Measuring Broadband America: A Report on Consumer Wireline Broadband Performance in the U.S. (2011), *available at* http://www.fcc.gov/measuring-broadband-america/2011/august. The Commission recently launched a counterpart program focused on measurement of mobile broadband network performance. *See* FCC to Launch Mobile Broadband Services Testing and Measurement Program, CG Docket 09-158, *Public Notice*, DA 12-1442 (OET rel. Sept. 4, 2012), *available at* http://www.fcc.gov/document/mobile-broadband-measurement. In Section III.D.2 below, we seek comment on the interplay of that program and any reporting obligations the Commission might adopt pursuant to this *NPRM*.

statements,[45] while at least one provider that performed poorly during the initial round of testing dramatically improved its performance in time for the second round.[46] In this context and others, the disclosure of targeted information appears to have driven service improvements, even where the disclosed information pertains only to a limited range of the many considerations that influence consumer decisionmaking.[47]

21. Moreover, the Executive Branch has issued guidance on the use of informational disclosures as a regulatory tool. A recent executive order directed executive branch federal agencies to focus on efforts "to identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice."[48] The OMB Office of Information and Regulatory Affairs then issued a memorandum providing guidance on the use of "smart disclosure," a regulatory approach defined as "the timely release of complex information and data in standardized, machine-readable formats in ways that enable consumers to make informed decisions."[49] Such information can be made available directly to consumers or be used by third parties to create tools, such as mobile phone applications, that can "greatly

[45] *See, e.g.*, David Young, Verizon Public Policy Blog, *Verizon FiOS Over-Delivers in FCC's Latest Broadband Speed Report*, (Feb. 15, 2013), *available at* http://publicpolicy.verizon.com/blog/entry/verizon-fios-over-delivers-in-fccs-latest-broadband-speed-report (last visited June 20, 2013); Cathy Avgiris, Comcast Voices, *What Does Sam Know? Comcast Delivers Faster Speeds to More People Than Any Other ISP*, (Aug. 2, 2011), *available at* http://corporate.comcast.com/comcast-voices/what-does-samknow-comcast-delivers-faster-speeds-to-more-people-than-any-other-isp (last visited June 20, 2013).

[46] *See* Broadband Speed: FCC Data is Improving the Market, Joel Gurin, Chief, Consumer and Governmental Affairs Bureau, FCC, Official FCC Blog, (Dec. 5, 2011), http://www.fcc.gov/blog/broadband-speed-fcc-data-improving-market.

[47] *See, e.g.*, Ginger Zhe Jin & Phillip Leslie, The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards, 118 Q.J. ECON. 409 (2003) (crediting the mandated display of hygiene "report cards" in Los Angeles restaurant windows with causing a twenty-percent reduction in hospitalizations for foodborne illnesses); Richard Harris, Breathing Easier: How Houston is Working to Clean up Its Air, National Public Radio (May 30, 2013), *available at* http://www.npr.org/2013/05/30/185993899/breathing-easier-how-houston-is-working-to-clean-up-its-air (discussing the role emissions disclosure requirements in improving Houston's air quality). In the commercial aviation sector, the Federal Aviation Administration's adoption of a requirement that carriers report flight delay and cancellation statistics created a market-based incentive for carriers to improve their service and scheduling practices, resulting in drastic immediate improvements. *See* Office of the Secretary, U.S. Department of Transportation, *Revision of Airline Service Quality Performance Reports and Disclosure Requirements,* 14 C.F.R. Part 234, [Docket No. RITA 2007-28522], Final Rule, 73 FR 29426, 29426 (May 21, 2008), *available at* http://apps.bts.gov/laws_and_regulations/docs/part234_4cy2008.pdf (last visited June 20, 2013); *see also* Scott McCartney, *Believe It or Not, Flying is Improving*, Wall Street Journal, Jan. 9, 2013, http://online.wsj.com/article/SB10001424127887324081704578231553159491828.html (last visited June 20, 2013). In addition, there is evidence that disclosures required in the 1968 Truth in Lending Act have improved consumer awareness of the terms and conditions of credit services. See S. Rep. No. 96-368, at 16 (1979), reprinted in 1980 U.S.C.C.A.N. 236, 252; Elwin Griffith, *The Truth and Nothing but the Truth: Confronting the Challenge in the Truth in Lending Act and Regulation Z*, 40 Hous. L. Rev. 345, 417 (2003).

[48] *See* Executive Order 13563, *available at* http://www.gpo.gov/fdsys/pkg/FR-2011-01-21/pdf/2011-1385.pdf (Section 4).

[49] *See* Office of Information and Regulatory Affairs, Office of Management and Budget, Memorandum for the Heads of Executive Departments and Agencies (2011) (OIRA Memorandum), *available at* http://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/informing-consumers-through-smart-disclosure.pdf; *see also* Office of Information and Regulatory Affairs, Office of Management and Budget, Memorandum for the Heads of Executive Departments and Agencies, "Disclosure and Simplification as Regulatory Tools," at 2 (2010), *available at* http://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/disclosure_principles.pdf.

reduce the cost to consumers of seeking out the relevant information from individual companies."[50] The purpose of "smart disclosure" is to make information "not merely available, but also accessible and usable,"[51] and the memorandum suggested that when designing related regulatory initiatives, agencies should consider making information as accessible as possible to consumers; making the underlying data available in machine-readable formats; standardizing the information; providing the information to the consumer in a timely manner; ensuring that disclosures keep pace with market innovation; promoting interoperability among data sets; and preventing disclosure of personally identifiable information.[52] We seek comment on whether the proposal we set forth and seek comment on below comports with these principles.

22. If the information disclosed is simple and easy to understand, that could make it more relevant and accessible to consumers than more complex and technical information. We seek comment on these matters. The proposal focuses disclosure on a single percentage figure that may provide a snapshot of service capabilities in a particular area at a given time. This information is collected by the Commission from the wireless service providers and considered useful to provide situational awareness to federal participants in disaster response, and the metric in the disclosures that we propose also has precedent in the information that mobile wireless providers have chosen to highlight in their own public statements. During the course of an emergency in which service is lost, mobile wireless providers in the United States often report the percentages of operational sites as a means of publicizing their progress in restoring service,[53] although such reporting is not standardized.

D. Proposals to Improve Mobile Wireless Network Transparency and Resiliency

23. In this section, we seek comment on specific elements of a proposal to improve the transparency and underlying resiliency of networks that provide mobile wireless services, by requiring providers of these services to provide for public disclosure the percentages of sites operational in their networks during major emergencies. We also seek comment on possible alternative or complementary measures that could improve wireless network resiliency.

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[50] *Id*. at 3. *See also* Joseph Marks, Google Tells Feds How to Get Emergency Info to the Top of Search Results, NextGov, June 4, 2013, *available at* http://www.nextgov.com/emerging-tech/2013/06/google-urges-gov-make-emergency-information-truly-open/64229/ (last visited June 13, 2013) (noting that "a machine-readable format means that external websites and mobile apps can automatically digest the information and deliver relevant results based on search queries, a person's location or other factors" and discussing how, during Superstorm Sandy and other disasters, Google pulled to the top of search results available emergency information when users searched relevant terms.)).

[51] OIRA Memorandum at 2.

[52] *See id*. at 5-6.

[53] *See e.g*., Verizon Wireless, Verizon Wireless Supporting Impacted Communities Coping With The Effects Of Hurricane Sandy, (Nov. 1, 2012), *available at* http://news.verizonwireless.com/news/2012/11/pr2012-11-01.html (last visited June 24, 2013) ("[M]ore than 96 percent of our cell sites [are] now in service and serving our customers in the impacted areas"); T-Mobile, Sandy T-Mobile Updates (last updated Nov. 6, 2012), *available at* http://newsroom.t-mobile.com/phoenix.zhtml?c=251624&p=irol-newsArticle&ID=1804111&highlight (last visited June 24, 2013) (noting in a Nov. 3, 2012 update that "[o]n Long Island, more than 75% of T-Mobile's sites are now operational and we are making steady improvements"); AT&T Consumer Blog, Updates on Sandy Relief (Nov. 4, 2012), *available at* http://blogs.att.net/consumerblog/story/a7785324 (last visited June 24, 2013) (noting that "[m]ore than 90 percent of our cell sites across New York City including Manhattan are back in service, up from 80 percent [three days ago]"); Sprint, Sprint Makes Significant Progress in Restoring Service Impacted by Hurricane Sandy, (Nov. 5, 2012) *available at* http://community.sprint.com/baw/community/sprintblogs/announcements/blog/2012/11/05/sprint-makes-significant-progress-in-restoring-service-impacted-by-hurricane-sandy (last visited June 24, 2013) (Sprint reporting that its network "in New York, New Jersey and Connecticut is now 85 percent operational").

1. Proposed Reporting and Disclosure of Percentages of Mobile Wireless Network Sites in Operation During Emergencies

24. The proposed rule in this *NPRM* would require facilities-based CMRS providers to report to the Commission daily on a county-by-county basis the percentage of their cell sites that are operational for counties in which the Commission has activated DIRS. Under this proposal, operational site percentages submitted by each mobile wireless service provider would be made available by the Commission on its website, where consumers could access it directly or where third parties could access it for the purpose of incorporating the data into private sector platforms, such as news reports or mobile phone applications. Appendix A contains draft language of a proposed rule. We seek comment on whether this metric provides a reasonable means of comparing how well networks withstand emergency conditions.

25. We first seek comment on the extent to which informational disclosures of this sort would enhance consumer choice and facilitate network improvements. Will consumers value having access to this information? Could the information be meaningful and useful to consumers in making the choice among mobile wireless service providers, and if so, how would it affect their decision making? Would the reported information be particularly important to consumers who may have heightened concerns about maintaining communications during emergencies, such as individuals with serious medical conditions and their families? In the absence of the disclosures discussed below, do consumers already have sufficient information about service reliability, as CTIA suggests?[54]

26. We also seek comment on whether providing consumers with such information would incentivize mobile wireless service providers to improve the capability of their network infrastructures to survive and continue operating during and after disasters. Is that correct? Would the potential that public disclosure would affect consumers' choice of mobile wireless service provider cause providers to view additional investment in networks as being competitively necessary to attract and retain customers? Could press coverage and knowledge by policymakers of this information foster improved performance by mobile wireless service providers, even if the elasticity of consumer demand for greater network reliability during emergencies is difficult to quantify or is perceived to be small? In other words, would providers nevertheless respond by seeking to improve their performance as a matter of risk management, *e.g.*, to avoid reputational risk in both the business and consumer markets?

27. On the other hand, would disclosure of network performance, in conjunction with outage reporting, lead to unintended negative consequences, such as a reduction of cooperation among providers during emergencies or disincentives to build out facilities, particularly in areas subject to severe weather? For example, would such disclosures favor large-tower architectures over small-cell and other heterogeneous architectures where there may be more towers, each more likely to fail but more resilient in the aggregate? We seek comment on any unintended consequences of adopting such disclosures, with examples of such consequences. We ask commenters to explain how likely and widespread those consequences would be and describe in detail the anticipated impact on consumers and public safety.

28. *Scope*. The proposed disclosures apply only to facilities-based CMRS providers with respect to sites used to provide CMRS. Is this scope reasonable given that the factual basis for the proposal is an observed variation in performance among mobile wireless networks in particular in their ability to withstand disaster conditions? Moreover, because the same companies provide most of the CMRS and mobile data services (*i.e.*, mobile broadband) consumed by the U.S. public, using much of the same underlying infrastructure, would the proposed reporting on CMRS infrastructure enable reasonable judgments to be made about the operational status of providers' mobile wireless services more generally?

29. In proposing a reporting requirement applicable only to mobile wireless providers, we observe that the great majority of emergency 911 calls originate on mobile wireless networks, and there

[54] *See* CTIA July 17 *Ex Parte* at 1.

has been an upward trend in such calls, making mobile wireless service of pre-eminent importance as the preferred method for U.S. consumers to reach out for help when they need it the most. Furthermore, given that most markets across the country are served by multiple mobile wireless service providers, could disclosures based on the proposed metric have a competitive impact that will drive improvements in communications infrastructure? Finally, because the metric tracks the performance of portions of the network that are within mobile wireless service providers' direct control during major emergency events, as opposed to outages that are due to consumers' loss of electric power,[55] is this proposed application to mobile wireless service providers reasonable? We seek comment on our proposed adoption of a reporting metric applicable only to CMRS providers. Should we consider changing the scope of our proposed reporting and disclosure requirements, or developing a separate program, to cover providers in other telecommunications sectors, such as wireline telephone or cable providers? Are some of those services different in important respects, such as whether customer outages are likely to continue due to loss of commercial power at the customer's home, rather than within the service provider's facilities and network? If so, what would be the rationale for applying outage-based reporting obligations to such providers? Is there a simple and easily understood metric that could be used for such disclosures? Are there better alternatives to foster reliability of these other services?

30. Moreover, as noted above, we use the term "cell site" throughout this *NPRM* to refer to any land station used to provide CMRS, irrespective of the network configuration under which the site is deployed.[56] We seek comment on this usage, which is incorporated into the definitions of "network site" and "operational site" in our proposed rule. Do these terms, as defined therein, leave any ambiguity as to whether certain facilities would qualify as "sites" for purposes of calculating percentages of sites in operation? We further observe that, as written, the proposal could apply to providers that operate networks not deployed under a cellular-based network architecture. We seek comment on the potential applicability of the proposed requirements to such providers. Are the requirements well-suited to such providers, particularly any that rely on only a small number of sites to provide service in a given area? Should we consider exempting certain mobile wireless service providers or classes of providers from the proposed requirements? If so, how should we determine which providers or classes of providers should be exempted?

31. We also propose that the requirements apply only to facilities-based mobile wireless providers, *i.e.*, those that own or control at least part of the network infrastructure they use to provide service, as opposed to merely purchasing and reselling service from other providers.[57] We seek comment on this limitation of the scope of the proposed requirement. Should mobile virtual network operators (MVNOs) or other non-facilities-based providers also be required to report outage or other information of some kind for public disclosure during emergencies? Could the disclosure of information about facilities-based providers but not resellers suggest to consumers that facilities-based providers are less reliable than MVNOs (even though MVNOs rely on facilities-based providers for service)? Would it be feasible for non-facilities-based providers to ascertain and report percentages of sites in operation by county for the underlying network infrastructure they use to deliver service? Should such providers instead be required simply to disclose with which facilities-based mobile wireless service providers they have contracted to provide service in a given area? Would extending the reporting obligations and associated disclosures to non-facilities-based providers result in additional incentives for their underlying facilities-based providers to improve the resiliency of their networks?

[55] In contrast, when cable or Voice over Internet Protocol (VoIP) service outages occur, it can be more difficult to determine whether the root cause of service loss is due to network problems, or due to lack of power at the customer's home.

[56] *See supra* note 2.

[57] *See infra* note 62 (defining "reseller").

32. *Reporting Metric*. For consumers to make fair and reasonable comparisons across providers and services, the information must be presented in an accessible and usable form that consumers can process and interpret easily without formal training or technical expertise and that third parties can incorporate into various informational platforms and applications.[58] Our proposal accordingly uses as a standard reporting metric the percentage of a mobile wireless service provider's sites that are operational, *i.e*., not put out of service as the result of power loss, damage, interruption of transport, or other causal factors.[59] We seek comment on the appropriateness of this standardized reporting metric as defined. Is there a need to clarify with greater precision what it means for a site to be considered "operational"? Are there ambiguous or borderline cases in which a site may or may not be considered "operational" or "providing service" as such terms are commonly used? Should providers report percentages rounded to the nearest percentage point?

33. We seek comment on requiring mobile wireless service providers to report for public disclosure percentages of operational sites on a per-county basis. This is how this information is currently reported in DIRS.[60] Reporting by county enables the geographic scope of reporting to expand or contract (*i.e*., by adding or subtracting counties) as a disaster unfolds, while preserving a clear baseline for making comparisons among providers. We seek comment on whether it is more useful to require reporting on a more or less granular level than per-county, and if so, what level? We also seek comment on whether it would be sufficient for reporting providers to specify a single percentage of sites operational for a broader affected area than county level, such as an aggregate of all of the counties selected for reporting in the state?

34. Should mobile wireless service providers also provide the underlying calculation basis to the FCC? Should that happen on a presumptively confidential basis? What additional information, if any, should providers be required to report for disclosure? Should there be a minimum number of cell sites operated by a mobile wireless service provider in a county for reporting of the information to be required? For example, if a provider has only three sites in a county, would the fact that one of these sites is out be probative as a percentage? Should the required reporting further take into account variations in the types of cell sites a provider deploys, *i.e.*, traditional "macro" cells vs. femtocells or other types of "small" cells. If so, how? Does comparing the overall percentage of each wireless service provider's sites that are operating adequately address this potential concern since each provider could have sites of various types? In seeking comment on these matters, we observe that providers themselves generally decline to distinguish among various cell site types when they report publicly during emergencies the percentages of their sites in operation in an affected area.[61]

35. Should we consider alternative metrics? If so, what are the relative costs and benefits of such alternatives in comparison to the proposed metric, keeping in mind our stated objectives in this proceeding? Should we consider requiring reporting for disclosure along more than one metric, or granting mobile wireless service providers more flexibility to tailor the content of their reporting to

[58] *See supra* Section III.C.

[59] As a matter of practice, providers often co-locate the sites they use in deploying successive generations (*e.g.,* GSM, UMTS, LTE) of mobile wireless technology. Consistent with DIRS reporting practices, the proposed rules would count such co-located sites as a single "site" for purposes of tabulating site outage percentages. We seek comment on this aspect of the proposal. How should the rules account for instances in which only some of the antennas located at particular site are operational? In such instances, should a provider be permitted to count the site as "operational"?

[60] *See, e.g.*, The FCC's Public Safety & Homeland Security Bureau Announces the Activation of the Disaster Information Reporting System in Response to Hurricane Sandy, Public Notice (PSHSB Oct. 29, 2012) (specifying counties subject to DIRS activation during Hurricane Sandy), *available at* http://transition.fcc.gov/files/documents/DIRS-Activation-PN-Sandy.pdf.

[61] *See supra* note 53.

particular circumstances? Would such flexibility undermine the ability of consumers to compare provider performance readily, thereby defeating one of the critical functions of the disclosure requirement? Could the proposed requirements foster behavior from mobile wireless service providers aimed at "scoring well" on the reporting metric, even where doing so comes at the expense of allocating resources most effectively? How and why might such behavior realistically occur and to what extent? Are there likely to be trade-offs in practice between restoration of the greatest possible number of sites and restoration of those most critical to serving customers? If so, if the proposed metric is used, would providers actually delay restoration of the sites that are most critical to their customers, notwithstanding that their customers will be able to detect whether or not their service is improving? If so, under what circumstances would providers engage in these sorts of behaviors? Please include specific examples in your comments.

36. Should we allow a mobile wireless service provider to count as a site "within" its network any site it actually uses to provide service during an emergency, regardless of whether it owns or controls the site?[62] What effect would counting sites gained through sharing in both the numerator and the denominator of the percentage have on providers' incentives to share? Would this counting result in better or worse service for consumers as providers work to increase their own resiliency? For example, if Provider A has sixty of ninety cell sites operating in a certain county, where Provider B has seventy-five of ninety operating, they would respectively report that sixty-seven percent and eighty-three percent of their sites are operational in that county. If each provider granted the other access to its operational sites in that county, however, both providers' reported percentages would increase substantially: Provider A would report seventy-seven percent ((60 + 75) divided by (90 + 75) = 135/165) and Provider B would report ninety percent ((75 + 60) divided by (90 + 60) = 135/150) of sites operational in the county. We seek comment on whether this is the best method for counting such cell sites that are provided from one competitor to another. Would such a provision appropriately account for sharing arrangements of the sort mobile wireless service providers are likely to implement in practice? To the extent a "borrowed" site effectively replaces a site used during normal periods to provide service, should a mobile wireless service provider be permitted or required to discount the latter site when calculating its percentages of sites in operation? Should a mobile wireless service provider be afforded only partial credit for its use of a borrowed site, given that it must share use of the site with the site's operator (and perhaps with other mobile wireless service providers) and the site may not be optimally positioned to perform as a site within its network? Should such a site be counted as one-half site for purposes of calculating the roaming provider's percentage of sites in service?

37. Rather than include such sites as part of its percentage calculations, should a mobile wireless service provider instead report separately the extent to which it used roaming or similar arrangements to augment its provision of service during an emergency? If so, should providers report percentages both with and without adjustments made to reflect such arrangements? If a facilities-based mobile wireless service provider uses roaming on a routine basis to expand its coverage footprint or network capacity in the counties designated for reporting during a disaster, should sites operated or controlled by its roaming partner within the affected area be counted as part of its network for purposes of calculating percentages of sites operational? Are mobile wireless service providers likely to have visibility into the operational status of individual sites they routinely use on a roaming basis to provide service to their customers?

38. Additionally, the proposal would allow providers to count as sites within their network any temporary sites, *e.g.*, Cells on Wheels (COWs) and Cells on Light Trucks (COLTs), that they have deployed to provide supplementary coverage and capacity during an emergency.[63] We seek comment on

[62] The scope of the proposal, however, excludes those companies that merely purchase or resell service from other CMRS providers. *See supra* para. 31. We recognize that the term "reseller" has taken on different meanings in different contexts in FCC precedent. Here the term is meant to refer to those who do not own, operate, or maintain at least part of the network infrastructure used to provide CMRS.

[63] *See* PCIA Aug. 5 *Ex Parte* Filing at 2.

this proposed treatment of temporarily deployed sites. Rather than be counted as full sites, should such sites be counted on a fractional basis, *e.g.,* as one-half of a site, given any attributes of COWs and COLTs such as coverage limitations? If a mobile wireless service provider uses a COW or a COLT to replace a disabled site entirely, should it be required to count the disabled site in the percentage? Given the operational complexities involved in deploying these sites, and their provisional and temporary nature, would it be more appropriate for mobile wireless service providers to report separately the extent to which temporary infrastructure is being used to augment their provision of service during an emergency?

39. We seek comment on the appropriateness of the proposed metric. First, we seek comment on whether consumers are likely to find the metric useful or if a different metric better serve consumer needs. Could the proposed metric unintentionally mislead consumers? For example, might consumers think that the percentage of inoperable sites within a county equals the percentage of lost coverage? Could the presence of overlapping coverage, heterogeneous architectures, and roaming arrangements with other carriers and other factors like Wi-Fi offload mean there is no one-to-one correlation between inoperable sites and lost coverage or capacity?[64] If so, could reporting lead consumers to think that some carriers perform particularly well or particularly poorly even if both carriers end of with effectively the same coverage and capacity as one another throughout a disaster? How likely is it that providers reporting widely diverging percentages of sites in operation in a given county would be providing their customers with comparable levels of service within that county?

40. Second, will consumers find this metric easy to understand, given that all mobile wireless service providers would report a single number on a one-hundred-point scale, with higher reported numbers representing a higher proportion of sites in service? Does the metric require only minimal effort from consumers to process such information and use it to make comparisons among mobile wireless service providers?

41. Third, we seek comment on whether the percentage of cell sites that are operational would provide a substantively reasonable metric that consumers can use to compare the resiliency of wireless networks and services. Although the percentage of operational cell sites may not correlate precisely to the availability of service, as a general matter, the disabling of any site may at least marginally impair the ability of a network to deliver service to customers in the area covered by the site, and the cumulative impairment of service is likely to increase as the percentage of operational cell sites decreases. Thus, are significant differences in percentages between providers likely to reflect real differences in the level of service provided to customers? Moreover, are such differences likely to be most apparent during major disasters? Are such circumstances likely to coincide with increases in attempts to communicate over mobile wireless networks, which would amplify the significance of any disparities among providers in the percentages of sites they have in operation? On the other hand, is it possible that the proposed metric risks overstating the degree to which cell site outages affect service availability?[65] If so, are there potential modifications that could be made to the metric to avoid this potential risk?

42. The reporting of *percentages* rather than absolute numbers of sites in operation seems likely to provide a better means for comparing relative performance across mobile wireless service providers because it can account for variations in the propagation characteristics of the spectrum bands in which they operate and the boundaries of mobile wireless service provider service territories. We seek comment on this issue.

[64] Commenters should consider whether the proposed metric discourage CMRS providers from adopting heterogeneous architectures, from deploying small cells and DAS, and from building macrosites with overlapping coverage?

[65] *See* CTIA July 17 *Ex Parte* at 1.

43. We recognize that the proposed metric potentially has its limitations. Modern mobile wireless networks are complex enterprises, and the technologies that support them continue to evolve at a rapid pace. If we adopt a rule like the proposal, we would expect to review it periodically as technologies evolve to assess its continued effectiveness, and to determine if there are complementary or better ways to obtain and provide useful information for comparing the resiliency of mobile wireless networks. The proposed metric does not specifically address emerging trends in network design that PCIA identifies, such as the proliferation of "small" cells or distributed antenna systems (DAS), that could improve network performance.[66] As providers continue to deploy a more diverse mix of cell types in their networks, there could be increasing numbers of cell sites that cannot feasibly be equipped with generators or dedicated sources of backup power. That said, is it clear whether such design attributes are being developed and implemented widely throughout the industry, or whether there currently are significant divergences among providers in how they design and configure their networks that would suggest the need for more or more complex metrics that specifically take these potential complications into account as PCIA suggests? Along the same lines, providers uniformly cite the need to prioritize restoration of their most critical sites when responding to a disaster; would the proposed metric affect this practice. Also, as noted, providers themselves continue to provide the percentage of sites operational to the public from time to time during disasters, and federal agencies continue to use these figures to provide situational awareness. We seek comment on these issues. Could such disclosures provide a reasonable basis for making comparisons among providers even if the metric is not perfectly suited to informing consumers exactly how providers would compare in serving them at any specific location?

44. We seek comment on what metric would provide consumers with the best picture of a network's operational status. For instance, could the proposed metric provide a better indication of overall network health than would a purely coverage-based metric—even if accompanied by detailed coverage maps, *etc*.—given that the mere availability of coverage in an area does not guarantee network capacity sufficient to provide reliable service? What about a metric that focuses on the volume or percentage of access failures (*i.e.*, "blocked calls") experienced by a network? Is such a metric feasible, given that increases in the volume of traffic in the radio access network can limit the extent to which such measurements can be taken reliably?[67] Does the proposed metric, on the other hand, provide information relevant to assessing both network coverage and the probability of completing a call? As the percentage of its cell sites in service decreases significantly, is a provider increasingly likely to experience both gaps in coverage and diminished capacity? Are providers suffering extensive site outages likely to avoid noticeable deteriorations in service, particularly in relation to competitors that are operating at significantly closer to full capacity? Are there more technically precise or sophisticated informational disclosures the Commission should consider that as easily enable consumers to make comparisons in disasters, in combination with or instead of the proposed metric?

45. *Timing and Frequency*. Under the proposal, DIRS activation would be the trigger for the reporting obligations. That is, beginning with the activation of DIRS and for the period that DIRS is active, mobile wireless service providers operating in counties subject to the DIRS activation would be required to report for public disclosure on a daily basis the percentage of their sites within such counties that are "operational" as we have defined that term.[68] In effect, DIRS activation could define both the temporal and geographic scope of "emergencies" under which mobile wireless service providers would be

[66] *See* PCIA Aug. 5 *Ex Parte* at 2.

[67] For example, it may be particularly difficult for CDMA and LTE technology to provide a means of measuring volumes of offered traffic, numbers of access failures or the percentages of access failures. Furthermore, all wireless technologies may have difficulty providing this information when experiencing extremely high traffic loads.

[68] The proposed rule set forth in Appendix A defines an operational site as one is "providing CMRS, notwithstanding commercial power loss, physical damage, backhaul or transport service disruption, or any other factor." *See infra* Appendix A.

required to report this information. The proposal would require such information to be submitted during any DIRS activation that is announced by means of a public notice, whether considered a full or partial activation.[69] This may be appropriate, given DIRS's function as a forum for "report[ing] communications infrastructure status and situational awareness information during times of crisis."[70] Moreover, DIRS is a well-established reporting system in which almost all major mobile wireless service providers widely participate; those providers that have contact information on file are notified directly of activations, while others can be notified by means of public notice. In addition, the overall extent of communications outages and impacts encountered during an event is a primary factor that drives the decision to activate DIRS; accordingly, we would expect that tying the proposed reporting to activation of DIRS would focus the reporting on circumstances in which it is most likely to generate meaningful information for consumers on the comparative resiliency of mobile wireless networks. As a practical matter, it is not atypical for DIRS to be activated only a few times each year;[71] in the latter half of 2012, for instance, DIRS was activated in whole or in part only in connection with the "derecho" storm, Hurricane Isaac, and Superstorm Sandy. We seek comment on the proposal to use activation of DIRS as a trigger for the reporting we propose in this *NPRM*. Given the projected frequency of DIRS activations based on past experience, should we consider modifying the obligation so that reporting would be triggered more frequently? What would be the advantages, if any, of more frequent reporting? Would such advantages outweigh the benefits of tying the reporting to activation of DIRS? If so, how?

46. If reporting and disclosures are tied to DIRS activation, the proposal would require providers to report the specified information once every twenty-four hours while the DIRS system remains active. These daily updates would enable consumers to assess the overall trajectory of a mobile wireless service provider's network outages and restoration efforts during an emergency without subjecting the mobile wireless service provider to overly burdensome reporting obligations. We seek comment on this frequency of reporting. Would such reporting fail to capture "critical factors" such as those CTIA identifies, including "a provider's service restoration practices that can make the information outdated in a matter of hours and the reliability of the network during the overwhelming majority of time that DIRS is not activated?"[72] Would reporting on a daily basis provide a sufficiently detailed picture for the overall recovery progress of a provider in responding to a disaster? Could the reporting provide valuable information about network resiliency during major disasters, even if does not address network performance during normal periods of operation? On the other hand, would making the proposed reporting less frequent than once a day discourage providers from keeping up with the daily cycle established for DIRS reporting, leading to reduced situational awareness during disasters?

47. DIRS participants typically provide status updates in DIRS once each day, so adopting a similar schedule for the proposed reporting may generate efficiencies for mobile wireless service providers that participate already in DIRS. To further standardize such reporting and align it with DIRS reporting practices, all reports of operational site percentages would be submitted at a time of day specified by the Commission in the public notice announcing the DIRS activation. We seek comment on these aspects of the proposal.

48. Recognizing that service restoration during an emergency is a complex and dynamic process, should we require providers to make "reasonable efforts" to ensure that submitted information is current and accurate as of the time of filing. To what extent would it differ from carriers do now in

[69] Sometimes a modified version of DIRS is activated, which calls for only certain fields in the system to be completed and only by certain types of communications providers. The Bureau often initiates this activation by contacting affected service providers directly to request information. Under the proposal, such informal activations would trigger disclosure obligations only if accompanied by a public notice announcing the activation.

[70] *See* DIRS Public Notice at 1.

[71] A comprehensive list of DIRS activations since its inception in 2007 is set forth in Appendix C.

[72] CTIA July 17 *Ex Parte* Filing at 1.

reporting under DIRS? Should we consider specifying in more detail the "reasonable efforts" required from providers in verifying the currency and accuracy of submitted information? Should we require providers to submit unsworn declarations attesting to the accuracy of their submissions?[73] We seek comment on this aspect of the proposal.

49. We seek comment on this proposed frequency and schedule for reporting of percentages of sites in operation. Would a requirement to report operational site percentages during an emergency, notwithstanding the voluntary reporting that providers already engage in on the same timetable, significantly divert resources away from service restoration or other emergency response activities? If so, how? Should the Commission consider granting providers additional time to report this information? If so, how long? Would delay in publication of such information diminish its significance and utility for consumers or impact whether its disclosure would likely drive provider improvements in reliability during disasters? Are consumers more likely to consider such information as a basis for comparing and selecting among providers if the information is made available to them during or shortly after a disaster?

50. Finally, the proposal's reporting and associated disclosures would be programmatically separate from DIRS, and their implementation would leave intact the scope, confidentiality presumptions, and other operational parameters of DIRS. The proposal would make public only a subset of information that can be derived from information contained in DIRS filings, *i.e.*, percentages of sites in operation by county, but they would not make publicly available any DIRS information *per se*. Would the proposal's disclosures be consistent with the overarching purposes of DIRS? Would they threaten the effectiveness of this important, voluntary program? If so, how? The Commission established a presumption of confidentiality protection for DIRS information when it created the program in 2007 in recognition of the fact that "DIRS filings voluntarily report weaknesses in and damages to the national communications infrastructure."[74] The public disclosure of such information, we then determined, could "potentially facilitate terrorist targeting of critical infrastructure and key resources" or "competitively harm the filers by revealing information about the types and deployment of their equipment and the traffic."[75] The network-level public disclosures of operational site percentages by county, however, would not require providers to reveal information about the status of any individual site that could render it more vulnerable to attack, and thus it does not appear that the proposed disclosure could be used to facilitate destructive acts against a provider's network. Similarly, the proposal does not require disclosure of potentially competitively sensitive information about specific deployment and operational practices, which have typically been accorded confidential treatment. Rather, the type of disclosures we propose—percentages of sites in operation by provider—is consistent with the public disclosures that competitors often make of the general performance of their products or services.[76] We seek comment on these issues.

51. In addition, we seek comment on the extent to which the disclosures proposed in this *NPRM* or similar proposals could have any unintended impact on DIRS reporting. Could such disclosures impair the ability of the Commission to obtain detailed DIRS reports from mobile wireless service providers in the future, or otherwise detract from the effectiveness of the DIRS program?[77] Are

[73] *See* 47 § C.F.R. 1.16.

[74] DIRS Public Notice at 2.

[75] *Id*.

[76] *See supra* note 53.

[77] *See* 5 U.S.C. § 552(b)(4) ("FOIA Exemption 4"); s*ee also National Parks and Conservation Ass'n. v. Morton,* 498 F.2d 765, 770 (D.C. Cir. 1974) (*National Park*) (providing that FOIA Exemption 4 applies when public disclosure of commercial or financial information submitted to the government "is likely . . . to impair the Government's ability to obtain necessary information in the future"); *see also Critical Mass Energy Project v. NRC*, 975 F.2d 871, 879 (D.C. Cir. 1987) (clarifying that FOIA Exemption 4 also protects program effectiveness, among other government interests).

there steps the Commission could take to mitigate any such unintended impacts? Are there effective alternative reporting metrics that would not require disclosure of information that may be presumed confidential?

52. The competitive concerns that partially underlie the confidential treatment afforded to DIRS and NORS filings may be inapposite in this proceeding. In establishing confidentiality protections for NORS filings, the Commission acknowledged the concerns of some providers that publicly reported outage information "[h]ad been used by competitors to wage marketing campaigns."[78] The limited informational disclosures may apply competitive pressure to providers to bolster the resiliency of their mobile wireless network infrastructure. Accordingly, would the incorporation of such disclosed information into "marketing campaigns" improve public safety rather than detract from the effectiveness of these disclosures? Moreover, the proposal's disclosure would not likely contain trade secrets or other privileged information, such that its disclosure would compromise the operation of the mobile wireless marketplace. In reporting its percentages of sites in operation, a provider would not be required to reveal anything about its underlying practices or techniques for achieving network resiliency. The focus of the reporting is on outcomes—how well networks withstand disaster conditions—not on the business judgments or other factors that determine these outcomes. Would such disclosures discourage competition or innovation? Would such disclosures encourage more robust competition among providers to improve the resiliency of their networks? In short, would such disclosures improve consumer welfare? We seek comment on these questions.

53. *Manner of Disclosure and Associated Recordkeeping*. The proposal would require that mobile wireless service providers report their operational site percentages to the Commission in a machine-readable format. The Public Safety and Homeland Security Bureau, with any necessary support from other bureaus and offices, would compile the reported information and to post it on the Commission website in an easily accessed location, in a format that enables comparisons to be made among providers. We seek comment on ensuring that reported information is effectively disclosed and made available to consumers. Could the Commission undertake additional efforts to make the information more accessible to consumers or to third parties that may seek to incorporate the information into "apps" or other tools for consumers? How likely is it that mobile wireless service providers would also provide additional information and analyses by other means, including by posting it on their websites or citing it in press releases or advertisements.

54. We seek comment on whether we should establish rules requiring providers to maintain adequate records for some limited period of time of the internal processes and deliberations that support the operational site percentages or any other information they are required to report. If so, what sorts of records should we require providers to keep, and in what form? What time period for retention might be sufficient and why? Do providers already keep records of information that supports their reporting in DIRS? If so, what sorts of records and for how long? Are there incentives for providers to voluntarily keep records, for instance, to provide evidentiary support for their reported percentages in the event of a dispute or enforcement action? What costs and benefits would be associated with the adoption of any recordkeeping requirements the Commission might adopt? Are there ways of minimizing such costs while ensuring that adequate records are kept?

55. *Applicability to Smaller Mobile Wireless Service Providers*. Finally, we seek comment on the applicability of the proposed reporting obligations and associated disclosures to smaller mobile wireless service providers. We observe that many small mobile wireless service providers routinely file daily reports in DIRS as do larger providers. We seek comment on whether it would be particularly costly or difficult for smaller mobile wireless service providers to comply with these proposed obligations or similar ones. Should our requirements make special provisions for these mobile wireless service providers? Do they need extended periods of time in which to report the information and, if so, why?

[78] *See Part 4 Report and Order*, 19 FCC Rcd at 16854-55 ¶¶ 44-45.

Would relaxed treatment for smaller providers unfairly limit their customers' ability to compare their providers' performance with that of their competitors? If we decide that smaller mobile wireless service providers merit special treatment under our rules, how should we delineate this class of mobile wireless service providers? In seeking comment on these matters, we observe that the Regulatory Flexibility Act of 1980, as amended,[79] (RFA) specifically directs us to consider the effects of proposed rules on small entities. Our Initial Regulatory Flexibility Analysis is set forth as Appendix B hereto.

56. *Further Study*. Alternatively, should the Commission refer the question of providing greater transparency into network recovery efforts of CMRS providers to CSRIC or TAC before adopting any reporting or disclosure requirements? Are there some issues that should be carved off for further study while the Commission proceeds with others? Why? We ask that commenters define with specificity any issue on which either advisory body should be charged with developing recommendations, the timing anticipated for such work, and the value that such recommendations would be expected to provide. Could the efforts of CSRIC and TAC effectively lead to similar benefits for consumers and improvements to network resiliency that the proposed reporting in this NPRM is aimed at providing?

2. Other Measures

57. We also seek comment on whether there are alternative or complementary measures for improving wireless network reliability that the Commission should consider in this proceeding or subsequently. Commenters identifying such measures should address their associated costs and benefits, and whether such measures should be considered as alternatives to or as complements of the reporting and disclosures we propose in this *NPRM*.

58. *Alternative Informational Disclosures*. We first seek comment on whether the Commission should consider informational disclosures that differ in kind from the sorts of disclosures we have proposed. One possibility is to require mobile wireless providers to make available, as many electrical utilities already do,[80] outage maps that document the availability of coverage within their service territories on an ongoing basis.[81] We seek comment on adopting a requirement that mobile wireless providers make such maps available, during disasters and perhaps during normal periods of operation as well. How burdensome would it be to provide such maps, and how useful would they be to consumers?

59. Another possibility is that the Commission require mobile wireless service providers to report or disclose information about the practices they have implemented to promote the reliability of their networks. Under this option, the Commission might require mobile wireless service providers to report detailed information about their provisioning of back-up power (*e.g.*, percentages of sites equipped, duration of supply, technologies used) as well as available supplementary deployments (*e.g.*, quantities of COWs and COLTs, portable generators) they undertake to improve the resiliency of their networks. Were we to require disclosures along these lines, would consumers be able to understand and use the information to draw reasonable inferences about the comparative resiliency of wireless networks, or would such disclosures inundate consumers with more information than they could reasonably be

[79] *See* 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601-12, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, tit. II, 110 Stat. 857.

[80] *See, e.g.*, Public Service of New Hampshire, Outage Map, http://www.psnh.com/outage (last visited July 3, 2013); AEP Ohio, Outages & Problems, https://www.aepohio.com/outages/ (last visited July 3, 2013); Pacific Gas and Electric, Outages, http://www.pge.com/myhome/customerservice/outages/ (last visited July 3, 2013).

[81] In Japan, some mobile wireless service providers have already begun providing such information voluntarily on a daily basis during disasters. In the wake of a destructive 2011 typhoon, Japanese mobile phone operators, including NTT DoCoMo, began voluntarily making daily public disclosures during disasters of service information about affected areas and the progress of cellular restoration and estimated time of recovery. *See* NTT DoCoMo, *Restoration Area Map* (filed in the instant proceeding on July 16, 2013), *available at* http://apps.fcc.gov/ecfs/document/view?id=7520928405.

expected to process? Would consumers understand which of these practices lead to different results, or is it preferable to focus on public reporting of a simple measure of comparative results among providers rather than on a number of dimensions of preparation? Would public disclosure of certain details of a provider's plans and resources for handling emergency situations pose a security risk? Are there other types of informational disclosures we have not identified, consistent with sound security policies, that would be useful to consumers or would otherwise advance network reliability? Are there less costly or less burdensome alternative measures that would accomplish the same intended objectives as the proposal?

60. *Relationship with Mobile MBA Program*. Next, we seek comment on the interplay between the reporting and disclosures proposed herein and the Commission's Mobile Measuring Broadband America (Mobile MBA) program.[82] Under the Mobile MBA program, mobile wireless customers will voluntarily install an "app" that enables their devices to take direct measurements of network performance (*e.g.*, throughput, latency, cell site availability) at specified intervals and upload the data to a central server. Such a program could complement or replace the proposed disclosures by providing information on day-to-day network performance. We seek comment on the relationship between the two initiatives. Could the robust implementation of the Mobile MBA program eventually generate sufficient participation and information that would obviate the need for mobile wireless service provider reporting and associated disclosures of the sort we envision in this *NPRM*? Are there additional ways in which the two programs can serve complementary purposes? If so, how?

61. *Performance Standards*. In its May 13 letter, Consumers Union recommends that the Commission use reporting metrics such as those considered herein "to set a schedule for phasing in improved performance standards as rapidly as possible."[83] As an initial matter, we seek comment on whether successful implementation of the proposed reporting and disclosure rule could obviate the need for adoption of such standards. Would reporting and disclosure alone be sufficient to facilitate wireless network resiliency while enabling wireless providers to maintain the operational flexibility they claim is necessary to effectively implement back-up power solutions?[84] Alternatively, should we consider performance standards of the sort Consumers Union proposes? Would the burden and cost of adopting performance standards exceed the benefits, particularly given the frequency or infrequency, or duration, of commercial power outages? Could the Commission take other complementary steps, short of adopting specific requirements, to encourage mobile wireless service providers to provide more robust back-up power for their cell sites or other critical communications facilities?[85]

62. If we should consider performance standards as a possible alternative, we seek comment on what form such standards should take. For example, should we consider emergency back-up power requirements similar to the requirements the Commission previously adopted for mobile wireless networks but never made effective?[86] Could we grant mobile wireless service providers greater flexibility

[82] *See* FCC to Launch Mobile Broadband Services Testing and Measurement Program, CC Docket 09-68, *Public Notice*, DA 12-1442 (2012), *available at* http://www.fcc.gov/document/mobile-broadband-measurement.

[83] Consumers Union Letter at 2.

[84] *See, e.g.*, Comments of CTIA-The Wireless Association, PS Docket 11-60 at 14-17 (July 7, 2011).

[85] We note that the *911 Reliability NPRM* contains proposals for regulating the provision of back-up power by "9-1-1 service providers," but we observe that such requirements would apply only to facilities, such as central offices, that are critical to the operation of 911 networks and involved in routing 911 calls and location information directly to a Public Safety Answering Point. *See 911 Reliability NPRM*, 28 FCC Rcd at 3424-25 ¶ 23. As such, the requirements proposed in that notice would not typically apply to mobile wireless network facilities or cell sites that allow subscribers to originate 911 calls, and the adoption of such requirements would thus have no direct bearing on any matters put forward for consideration in this *NPRM*.

[86] The Commission, in 2007, adopted—but never made effective—a requirement that CMRS providers supply each of their cell sites with a back-up power supply capable of providing eight hours of service in the event of

(continued….)

than the previous rule, for example, by applying global back-up power standards to networks as a whole rather than to each individual site? If we were to specify a minimum duration for provision of back-up power, what would be a reasonable threshold, taking into consideration the capability of currently available back-up power technologies, including batteries? Since loss of backhaul service (*i.e.*, the connectivity between a site and the rest of the network) is also a major cause of cell site unavailability during emergencies, should the Commission consider adoption of performance standards to promote more redundant backhaul provisioning and what should those standards include? What are the incremental benefits of such standards and do they exceed the costs and burdens? Finally, if performance standards are appropriate, should we consider phasing in such standards over time?

63. *Voluntary Industry Measures*. We also seek comment on whether heightened transparency and resiliency of mobile wireless networks could be achieved adequately through voluntary measures. We note one recent example of voluntary measures undertaken by industry to address consumer issues by empowering consumers through greater transparency. In light of concerns that substantial numbers of wireless consumers had experienced "Bill Shock"—a sudden, unexpected increase in their wireless bills—the Commission in October 2010 proposed rules requiring carriers to alert consumers as they approach, and again as the reach limits of plan minutes, texts, data, and international roaming.[87] In October 2011, the Commission announced an agreement between it, Consumers Union, CTIA, and certain wireless carriers that these carriers would provide free, automatic Bill Shock alerts on a voluntary basis, pursuant to CTIA's Code of Conduct.[88] The alert requirements were phased in, culminating in the April 2013 announcement that all participating carriers now provide the alerts as promised.[89] As a result, CTIA states that approximately 97 percent of consumers are protected against Bill Shock for voice, text, data, and international roaming services.[90] The Commission established a website to enable consumers to easily identify participating carriers' specific Bill Shock alert policies and thresholds.[91]

64. We seek comment on whether a similar voluntary initiative might feasibly achieve the improvements to consumer choice and network resiliency that are the objectives of this proceeding. If so, how might such an initiative work in practice? Could a voluntary initiative involving wireless industry and consumer advocacy groups timely develop additional or improved metrics about service availability and network performance during natural disasters that result in extensive service outages that would meet the objectives of providing consumers with information that they may find useful, and spurring comparisons and competition that result in greater reliability? Would such an initiative be likely to produce candid and transparent reporting of information to consumers, even from providers that must

(Continued from previous page)
commercial power loss. *See Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, Order, 22 FCC Rcd. 10541, 10565 (2007) (*Katrina Panel Order*), *on recon*., 22 FCC Rcd 18013 (2007), *vacated*, *CTIA v. FCC*, Nos. 07-1475 *et al*. (Order dated July 31, 2009). The Commission renewed examination of this issue in the 2011 *Notice of Inquiry*, where it sought comment more broadly on the technical and logistical aspects of provisioning back-up power and on whether the Commission should consider forms of back-up power regulation that offer service providers greater flexibility than the eight-hours-per-site requirement the Commission adopted previously. *See Reliability NOI,* 26 FCC Rcd at 5621-22 ¶¶ 23-25.

[87] *Empowering Consumers to Avoid Bill Shock, Consumer Information and Disclosure*, CG Docket Nos. 10-207, 09-158, Notice of Proposed Rulemaking, 25 FCC Rcd 14625 (2010).

[88] *See* Comments of former Chairman Julius Genachowski at Bill Shock Event, (Apr. 17, 2010) *http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-310290A1.pdf*.

[89] *See* FCC Marks Milestone in Effort to Eliminate "Bill Shock," *News Release* (Apr. 13, 2013).

[90] *See id.*

[91] *See* http://www.fcc.gov/bill-shock-alerts.

report poor performance? Additionally, are there opportunities for public-private initiatives that could help achieve the objectives? Could a real-time crowdsourcing approach work?

E. Legal Authority

1. Statutory Considerations

65. We seek comment on whether reporting requirements of the sort proposed in this *NPRM* would be within the Commission's authority under the Communications Act of 1934, as amended. In particular, we note that section 201(b) the Act authorizes the Commission to "prescribe rules and regulations as may be necessary in the public interest to carry out the provisions" of the Act. These provisions include the requirement that the practices of common carriers, including CMRS providers, are "just and reasonable" and not "unjust or unreasonable."[92] The Commission has asserted this authority in other contexts as a basis for requiring carriers to make available to the public information that enables consumers to make informed decisions about whether to purchase or retain a service.[93] To the extent they promote "just and reasonable" practices relating to the resiliency of mobile wireless networks during emergencies, would the reporting and disclosures proposed in this *NPRM*, or similar proposals, advance the foundational purpose of the Commission articulated in section 1 of the Communications Act, namely that of "promoting the safety of life and property through the use of wire and radio communications"?[94]

66. Are there other Title II or Title III provisions that would provide a legal basis for the adoption of requirements of the sort we propose insofar as they extend to the provision of CMRS services? Could such mandatory reporting of network reliability data for public disclosure be grounded in section 214(d)'s requirement that a common carrier "provide itself with adequate facilities for the expeditious and efficient performance of its service as a common carrier"[95] and to "undertake improvements in facilities" to meet public demand?[96] Would the proposed requirements also fall within the Commission's authority under section 218 to obtain from common carriers "full and complete information necessary to enable the Commission to perform the duties and carry out the objects for which it was created?"[97] With respect to CMRS service, would such proposals be within the scope of our "broad authority" under Title III?[98] We seek comment in particular on the applicability of Sections 301 and 316, and our authority under section 303(b) to "[p]rescribe the nature of the service to be rendered by each class of licensed stations and each station within any class."[99] Section 301 provides for licensing of

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[92] *See* 47 U.S.C. § 201(b).

[93] *See, e.g.*, *Anti-Slamming 2d R&O/FNPRM*, 14 FCC Rcd 1508, 1581-84 (1998); 47 C.F.R. § 64.1190(d); *STI Telecom Inc.*, Notice of Apparent Liability for Forfeiture, 26 FCC Rcd 12808, 12813-34 (2011); *NOS Communications, Inc.*, Notice of Apparent Liability for Forfeiture, 16 FCC Rcd 8133, 8133 (2001); Computer III Further Remand Proceedings, *Report and Order* in CC Dockets 95-20 and 98-10, 14 FCC Rcd 4289, 4322 (1999).

[94] *See* 47 U.S.C. § 151.

[95] 47 U.S.C. § 214(d).

[96] RCA Communications, Inc., *Memorandum Opinion and Order,* 44 F.C.C.2d 613 ¶ 17 (1956). Although section 214(d) requires a "full opportunity for hearing," that requirement may be satisfied by notice and comment rulemaking. *See, e.g.,* Amendment of Parts 65 and 69, 10 FCC Rcd 6788 ¶¶ 56-57 (1995), *citing AT&T v. FCC,* 572 F.2d 17 (2d Cir. 1978) (identical language in section 205(a)). *See generally United States v. Storer Broadcasting Co.,* 351 U.S. 192 (1956); *WBEN, Inc. v. United States,* 396 F.2d 601, 617-18 (2d Cir. 1968); *California Citizens Band Ass'n v. United States,* 375 F.2d 43 (9th Cir. 1967) (interpreting other hearing requirements set forth in the Act).

[97] 47 U.S.C. § 218.

[98] *Cellco Partnership v. FCC,* 700 F.3d 534, 541 (D.C. Cir. 2012). *See also id.* at 542 ("expansive powers"), quoting *NBC v. United States,* 319 U.S. 190 (1943).

[99] 47 U.S.C. §§ 301, 303(b), 316.

CMRS providers, and Section 316 authorizes the Commission to modify such licenses "if in the judgment of the Commission such action will promote the public interest, convenience, and necessity."[100] Would the foregoing sources of authority, when coupled with our authority to "generally encourage the larger and more effective use of radio in the public interest," and to adopt rules "as may be necessary to carry out the provisions of th[e] Act," extend to the proposed disclosure requirements, as less restrictive ways of promoting more reliable service by wireless providers?[101]

67. Also, we seek comment on the applicability of the Commission's authority over 911 service. The Nation's 911 system is part of its critical communications infrastructure, and the Commission plays a key role ensuring that the communications networks, including those of mobile wireless service providers, promote public safety, especially on matters involving national security and emergency preparedness of the United States.[102] Indeed, Congress established the Commission in part to promote the "safety of life and property."[103] Consequently, the Commission also enjoys "broad public safety and 9-1-1 authority."[104] With mobile wireless service subscribers originating an increasing share of the nation's 911 calls—already the great majority and measured at as high as 75 percent in some areas[105]—the resiliency of mobile wireless networks is becoming ever more critical to the reliable provision of 911 service. Accordingly, we seek comment on the extent to which the Commission's authority over 911 service could provide additional support for the adoption of requirements proposed in this *NPRM* or similar requirements.

2. First Amendment

68. We seek comment on whether the reporting requirements proposed in this *NPRM*, like the "anti-cramming" rules the Commission adopted in 2012,[106] could withstand scrutiny under the First Amendment to the U. S. Constitution. In general, government regulation of commercial speech will be found compatible with the First Amendment if it meets the criteria laid out in *Central Hudson*: (1) there is a substantial government interest; (2) the regulation directly advances the substantial government interest; and (3) the proposed regulation is not more extensive than necessary to serve that interest.[107] Under the standard set forth in *Zauderer*, compelled disclosure of "purely factual and uncontroversial" information is permissible if "reasonably related to the State's interest in preventing deception of consumers."[108] We seek comment on which of these two standards, or any other standard, would apply to the proposals set forth in this *NPRM,* and whether the proposals would satisfy that standard.

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[100] 47 U.S.C. §§ 301, 316.

[101] 47 U.S.C. §§ 303(g), 303(r). *See Cellco Partnership v. FCC,* 700 F.3d 534 (D.C. Cir. 2012).

[102] *See* Exec. Order No. 12,472, *Assignment of National Security and Emergency Preparedness Telecommunications Functions*, 49 Fed. Reg. 13471 (1984), as amended by Exec. Order 13,286, *Amendment of Executive Orders, and Other Actions, in Connection With the Transfer of Certain Functions to the Secretary of Homeland Security*, 68 Fed. Reg. 10619 **(**2003**)**, and Exec. Order 13,407, *Public Alert and Warning System*, 71 Fed. Reg. 36975 (2006).

[103] *See, e.g.*, 47 U.S.C. § 151.

[104] *See Nuvio Corp. v. FCC,* 473 F.3d 302, 311 (D.C. Cir. 2007) (Kavanaugh, J., concurring).

[105] *See supra* note 42.

[106] *See* Empowering Consumers to Prevent and Detect Billing for Unauthorized Charges, *et al*., CG Docket No. 11-116, *et al*., *Report and Order and Further Notice of Proposed Rulemaking*, 27 FCC Rcd 4436 (2012) (*Anti-Cramming Order*).

[107] *Central Hudson Gas & Electric Corp. v. Public Service Commission,* 447 U.S. 557, 566 (1980). Commercial speech that is potentially misleading has less First Amendment protection, and misleading commercial speech is not protected at all and may be prohibited. *Id.* at 563-64.

[108] *Zauderer v. Office of Disciplinary Counsel*, 471 U.S. 626, 651 (1985); *see also* R.J. Reynolds Tobacco v. FDA, 696 F.3d 1205 (D.C. Cir. 2012).

69. In particular, we seek comment on whether reporting obligations of the sort we propose in this *NPRM* would meet the *Central Hudson* criteria. The Commission has previously observed that "the government has a substantial interest in ensuring that consumers are able to make intelligent and well-informed commercial decisions in an increasingly competitive marketplace."[109] The government also has a substantial interest, enshrined in Section 1 of the Communications Act, in protecting the safety of the public through the use of radio communications.[110] We seek comment on whether the reporting requirement proposed in this *NPRM* would directly advance these interests by making available for public disclosure information about the operational status of mobile wireless networks during emergencies, where designed to create incentives for mobile wireless service providers to improve the resiliency of these networks. What sort of additional factual record, if any, would the Commission need to develop to establish that the proposed reporting "directly advances" these substantial government interests?

70. We note that the proposed requirements would require reporting only of a single, fact-based metric, one that can be calculated from information that providers already tabulate and routinely report in DIRS filings. Such regulation is different in kind from minimum back-up power requirements previously adopted by the Commission, or other forms of direct regulation of wireless network facilities or practices. Moreover, in other contexts the proposed reporting of information to the government for purposes of compilation and disclosure that has been deemed less restrictive than requiring "companies themselves to publicly post detailed information in a particular format."[111] In addition, we observe that the proposed reporting would in no way restrict providers from disclosing information of their own choosing directly to the public, as many already do, to provide a fuller context for assessing the performance of their networks during an emergency. We seek comment on the relevance of these considerations.

71. Finally, we seek comment on the applicability of the *Zauderer* standard to reporting obligations of the sort proposed in this *NPRM*. Would the reported information qualify as "purely factual and uncontroversial," provided that the reporting metric is defined with sufficient clarity and precision? Would the prevailing usage of operational site percentages among providers as a means of reporting progress in disaster recovery undermine any claim that such information is non-factual or controversial? Could the proposed reporting be construed as being "reasonably related to the State's interest in preventing deception of customers?" What sort of additional factual record, if any, would the Commission need to develop to establish such a relationship? Could such a relationship be established even in the absence of evidence of any intent to deceive? For instance, would the proposed reporting "reasonably relate[]" to preventing deception of customers insofar as disclosure of the reported information alerts customers to deficiencies in network resiliency of which they were previously unaware and which may have affected their prior purchasing decisions had the information been made available to them? Are there are other ways of establishing a reasonable relationship between reporting of the sort we propose and the prevention of consumer deception?

F. Procedural Matters

1. Regulatory Flexibility Act

72. As required by the Regulatory Flexibility Act of 1980 (RFA),[112] the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) for this *NPRM*, of the possible significant

[109] *See* Consumer Information and Disclosure et al., CG Docket 09-158 et al., *Notice of Inquiry*, 24 FCC Rcd 11380, 11389-90 ¶ 21 (2009) (citing Truth-in-Billing and Billing Format, *First Report and Order and Further Notice of Proposed Rulemaking*, CC Docket No. 98-170, 14 FCC Rcd 7492, 7531 ¶ 61 (1999)).

[110] *See* 47 U.S.C. § 151.

[111] *See American Petroleum Institute v. SEC*, Civil Action No. 12-1668, slip op. at 27 (D.D.C. July 2, 2013) (Bates, J.) (citing *Riley v. Nat'l Fed'n of the Blind of N.C., Inc*., 487 U.S. 781, 800 (1988)).

[112] *See* 5 U.S.C. § 603.

economic impact on small entities of the proposals addressed in this document. The IRFA is set forth as Appendix B. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *NPRM* provided on or before the dates indicated on the first page of this *NPRM*. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this *NPRM*, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[113] In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the Federal Register.[114]

2. Paperwork Reduction Act of 1995

73. This document contains proposed new information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and OMB to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4), we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

3. Ex Parte Rules

74. The proceeding is a part is a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.[115] Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made;, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.*, .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

4. Comment Filing Procedures

75. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments should be filed in PS Docket No. 13-239. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://fjallfoss.fcc.gov/ecfs2/.

[113] *See* 5 U.S.C. § 603(a).

[114] *See id.*

[115] 47 C.F.R. §§ 1.1200, 1.1202 *et seq.*

- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.

  Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

  - All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
  - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
  - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Confidential Materials: Parties wishing to file materials with a claim of confidentiality should follow the procedures set forth in section 0.459 of the Commission's rules. Confidential submissions may not be filed via ECFS but rather should be filed with the Secretary's Office following the procedures set forth in 47 C.F.R. Section 0.459. Redacted versions of confidential submissions may be filed via ECFS.

IV. ORDERING CLAUSES

76. Accordingly, IT IS ORDERED pursuant to sections 1, 4(i), 4(j), 4(o), 201(b), 214(d), 218, 251(e)(3), 301, 303(b), 303(g), 303(j), 303(r), 307, 309(a), 309(j), 316, 332, 403, 615a-1, and 615c of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j) & (o), 201(b), 214(d), 218, 251(e)(3), 301, 303(b), 303(g), 303(j), 303(r), 307, 309(a), 309(j), 316, 332, 403, 615a-1, and 615c,that this *Notice of Proposed Rulemaking* in PS Docket No. 13-239 and PS Docket No. 11-60 IS ADOPTED.

77. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR part 4 as follows:

PART 4 – DISRUPTIONS TO COMMUNICATIONS

1. The authority citation for part 4 continues to read as follows:

   Authority: Sec. 5, 48 Stat.1068, as amended; 47 U.S.C. 1154, 155, 201, 251, 307, 316, 615a-1, 1302(a), and 1302(b).

2. Section 4.15 is added to read as follows:

§ 4.15 Disaster Reporting Requirements for Commercial Mobile Radio Services Providers

(a) Definitions. For purposes of Section 4.15 only, the following definitions apply:

(i) Network site. 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. Co-located transmitters or antennas used by the same provider to provide CMRS using different technologies shall be treated as a single network site.

(ii) Operational site. A network site that is providing CMRS, notwithstanding commercial power loss, physical damage, backhaul or transport service disruption, or any other factor.

(b) Facilities-based CMRS providers are required to report the information specified in section (c) below during periods of activation of the DIRS system, but only when such activation is announced by means of a public notice.

(i) In carrying out the reporting specified in section (c) below, providers shall report only with respect to counties subject to the DIRS activation.

(ii) The reporting specified in section (c) shall be made at the time specified in the public notice announcing the DIRS activation, or as soon as possible thereafter, each day the DIRS system remains activated unless otherwise specified by the Commission.

(c) Under the circumstances specified in section (b) above, CMRS providers shall report to the Commission the percentage of their network sites in each county that are operational sites at the time the percentage is reported. Providers shall make reasonable efforts to ensure that all reported information is accurate and current as of the time it is reported.

(d) Providers shall carry out the reporting required under subsection (c) by submitting the required information to the Federal Communications Commission in a machine-readable format, and in accordance with any guidance the Public Safety and Homeland Security Bureau (Bureau) may issue with respect to such submissions.

(e) The Bureau shall compile the information reported under subsection (c) and publicly disclose the information on the Federal Communications Commission website, http://www.fcc.gov, in a prominent and easily accessed location and in a manner that enables comparisons to be made among providers. The Bureau may also, take additional measures as appropriate to make this information more accessible and useful to consumers.

APPENDIX B

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the recommendations in this *Notice of Proposed Rule Making* (*NPRM*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments provided in "Comment Period and Procedures" of this *NPRM*. The Commission will send a copy of this *NPRM,* including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the Federal Register.[3]

A. Need for, and Objectives of, the Proposed Rules

2. The American public relies increasingly on mobile wireless networks to communicate, with the great majority of calls to 911 already originating on wireless networks and a large and growing number of households having only wireless phones. Notwithstanding these trends, during Superstorm Sandy and other recent storms, mobile wireless networks suffered extensive site outages, seriously impairing the ability of millions of customers to summon emergency assistance, receive emergency information, and reach their loved ones. Although some service disruptions may be unavoidable during a major emergency, and surges in demand for wireless service at those times present added challenges, the current state of affairs is not acceptable and requires action. We believe that better service and hardening of mobile wireless networks is feasible and could dramatically reduce the severity of these problems, which are not incurred in equal measure by all mobile wireless providers.

3. Accordingly, our central proposal in this NPRM is to require facilities-based commercial mobile radio service (CMRS) providers to report to the Commission for public disclosure, on a daily basis during and following major emergencies, the percentage of cell sites within their networks that are providing CMRS. These disclosures would be made for each county in the designated disaster area. This information is currently included in voluntary reports provided electronically to the Commission by mobile wireless service providers in disasters, but on a presumptively confidential basis. For the reasons discussed below, we believe that requiring reporting and public disclosure of the information proposed could benefit consumers while also advancing public safety. First, public disclosure could enable consumers to reasonably compare the performance of mobile wireless service providers on a sufficiently similar basis during major emergencies to help consumers to make more informed decisions when selecting mobile wireless products and services. Second, empowering consumers with this information on an ongoing basis could in turn apply competitive pressure on mobile wireless service providers to invest in material improvements to their respective network infrastructures or take other actions to improve the reliability and resiliency of their networks. Third, the standardized disclosure of such information could provide policymakers with useful information and potentially spark an honest and more informed public safety and communications dialogue, perhaps including consideration of possible barriers to greater reliability of mobile wireless networks.

[1] *See* 5 U.S.C. § 603. The RFA, 5 U.S.C. § 601-12., has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121. tit. II, 110 Stat. 857.

[2] *See* 5 U.S.C. § 603(a).

[3] *See id.*

4. In addition to seeking comments below on specific transparency proposals, we also explore alternative or complementary approaches and seek more general comment on other steps the Commission could take if necessary to achieve the goals of greater mobile wireless network transparency and reliability.

B. Legal Basis

5. The legal basis for the rules and rule changes proposed in this *NPRM* are contained in Sections 1, 4(i), 4(j), 4(o), 201(b), 214(d), 218, 251(e)(3),301, 303(b), 303(g), 303(j), 303(r), 307, 309(a), 309(j), 316, 332,403, 615a-1, and 615c of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 154(j), 154(o), 201(b), 214(d), 218, 251(e)(3),301, 303(b), 303(g), 303(j), 303(r), 307, 309(a), 309(j), 316, 332, 403, 615a-1, and 615c.

C. Description and Estimate of the Number of Small Entities to Which Rules Will Apply

6. The RFA directs agencies to provide a description of, and, where feasible, an estimate of, the number of small entities that may be affected by the proposed rules adopted herein.[4] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[5] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[6] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[7]

7. Our action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards.[8] First, nationwide, there are a total of approximately 27.9 million small businesses, according to the SBA.[9] In addition, a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[10] Nationwide, as of 2007, there were approximately 1,621,315 small organizations.[11] Finally, the term "small governmental jurisdiction" is defined generally as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[12] Census Bureau data for 2011 indicate that there were 89,476 local governmental jurisdictions in the United States.[13] We estimate that, of this total, as many as 88,506

[4] 5 U.S.C. § 603(b)(3).

[5] 5 U.S.C. § 601(6).

[6] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[7] Small Business Act, 15 U.S.C. § 632.

[8] *See* 5 U.S.C. §§ 601(3)–(6).

[9] *See Frequently Asked Questions*, U.S. SMALL BUS. ADMIN. OFFICE OF ADVOCACY, http://www.sba.gov/sites/default/files/FAQ_Sept_2012.pdf (reporting numbers from 2010).

[10] 5 U.S.C. § 601(4).

[11] INDEP. SECTOR, THE NEW NONPROFIT ALMANAC AND DESK REFERENCE (2010).

[12] 5 U.S.C. § 601(5).

[13] U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, tbl.427 (data cited therein from 2007).

entities may qualify as "small governmental jurisdictions."[14] Thus, we estimate that most governmental jurisdictions are small.

8. The disclosure obligations proposed in the *NPRM* would apply exclusively to facilities-based CMRS providers, *i.e.*, providers of CMRS that own or operate at least part of the network infrastructure that provides the service. The SBA size standard that most clearly applies to this class of providers is that established for Wireless Telecommunications Carriers.[15] Under that standard, a business with 1,500 of fewer employees is considered small. Census Bureau data for 2007 show that there were 1,383 firms in this category that operated for the entire year. Of this total, 1,368 had employment of 999 or fewer, and 15 firms had had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the majority of these Wireless Telecommunications Carriers can be considered small.[16]

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

9. The *NPRM* proposes requiring mobile wireless providers to submit to the Commission for purposes of public disclosure, on a daily basis during designated emergencies, the percentage of their cell sites in each affected county that are operational. Providers would need to make "reasonable efforts" to ensure that such disclosures are accurate and up-to-date as of the time they are made. A large number of CMRS providers, including many smaller providers, already report such information on cell site outages in DIRS. In the *NPRM*, however, we have estimated the costs the proposed requirements would impose on providers that do not currently provide such information in DIRS. We have estimated that a $78,000 total nationwide annual expense would be imposed on an assumed fifty additional providers that currently are not reporting DIRS data, many of whom would likely qualify as small. Under this estimate, an average of only $1,560 in annual costs would be imposed on each provider, of which there would be only fifty—out of an estimated 1,368 small providers—and not all of whom would necessarily qualify as small. We therefore do not believe that the proposal would have a significant economic impact on a substantial number of small entities. We seek comment on this analysis.

10. In addition, the *NPRM* seeks comment on whether there is a need to impose requirements on providers to keep adequate records of the internal processes and deliberations that support their required disclosures. The NPRM seeks comment on ways of minimizing the costs of any such recordkeeping, and on whether providers have adequate incentives to keep such records voluntarily (*i.e.*,

[14] The 2007 U.S Census data for small governmental organizations are not presented based on the size of the population in each such organization. There were 89,476 small governmental organizations in 2007. If we assume that county, municipal, township and school district organizations are more likely than larger governmental organizations to have populations of 50,000 or less, the total of these organizations is 52,125. If we make the same assumption about special districts, and also assume that special districts are different from county, municipal, township, and school districts, in 2007 there were 37,381 special districts. Therefore, of the 89,476 small governmental organizations documented in 2007, as many as 89,506 may be considered small under the applicable standard. This data may overestimate the number of such organizations that has a population of 50,000 or less. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, tbls.426, 427 (data cited therein are from 2007).

[15] This category excludes satellite telecommunications providers.

[16] *Information: Subject Series – Establishment and Firm Size: Employment Size of Firms for the United States: 2007 Economic Census*, U.S. CENSUS BUREAU, http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ5&prodType=table (last visited July 2, 2013).

to ensure there is adequate evidentiary support for their disclosures in the context of an enforcement proceeding).

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

11. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[17]

12. The disclosure obligations we do propose are minimally extensive, and for several reasons we do not believe that their implementation would have a significant economic impact on any mobile wireless providers, including those that qualify as small. First, the disclosures would be required only during serious emergencies, and even then only once a day. The content of the disclosure, a single percentage figure for each affected county, is minimal both in terms of size and complexity. Also, the information subject to disclosure is already routinely reported on a voluntary basis by mobile wireless providers, including many small providers, in the Commission's Disaster Information Reporting System (DIRS). For such providers, compliance with the reporting obligation would require no additional effort. We further observe that the disclosure requirement would not prescribe a design standard, as providers would be required to report statistics on the resiliency of their networks but retain wide flexibility to implement the strategies they deem most effective in achieving sufficient resiliency.

13. The disclosure requirements proposed in the *NPRM* are among the least burdensome of available options for promoting mobile wireless network resiliency. One alternative option we might have proposed is to require providers to supply cell sites or other critical facilities with minimum supplies of back-up power to be used in the event of commercial power loss. The Commission previously adopted requirements along these lines, although they were ultimately vacated at the Commission's request in the face of legal challenge from the mobile wireless industry. Although we seek general comment in the *NPRM* on back-up power requirements as an alternative to, or possible complement of, the proposed disclosure obligations, we do not propose moving forward with adoption of such requirements at this time. Another alternative we consider in the *NPRM* is to require reporting of information other than operational site percentages, such as information about the efforts a provider has undertaken to harden its network and prepare for disasters. The relative economic impact of such reporting on small providers in comparison to the proposal is difficult to gauge in the absence of specific details, but we do not have reason to believe it would be significantly less burdensome than the minimal reporting discussed.

14. Finally, notwithstanding these observations, we seek comment in the *NPRM* specifically on the potential impact of the proposed obligations on small mobile wireless providers and on steps that could be taken to minimize the burden on such entities. We renew our request for comment on these matters in this IRFA. In doing so, we observe that many small mobile wireless service providers routinely file daily reports in DIRS as do larger providers, which suggests that such mobile wireless service providers would not find it particularly burdensome to comply with the sorts of reporting obligations discussed. Nevertheless, we seek comment on whether it would be particularly costly or difficult for smaller mobile wireless service providers to comply with these proposed obligations or similar ones. Should our requirements make special provisions for these mobile wireless service providers? Do they need extended periods of time in which to report the information and, if so, why?

[17] 5 U.S.C. § 603(c).

Would relaxed treatment for smaller providers unfairly limit their customers' ability to compare their providers' performance with that of their competitors? If we decide that smaller mobile wireless service providers merit special treatment under our rules, how should we delineate this class of mobile wireless service providers?

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rule

None.

APPENDIX C

Activations of DIRS Since Its Inception in 2007

Full Activation:

YEAR	NAME
2007	FAY
2008	GUSTAV
	IKE
2009	KENTUCKY ICE
2010	ALEX (Later downgraded to partial activation)
	EARL (Later downgraded to partial activation)
2011	IRENE
2012	ISAAC
	SANDY

Partial Activation:

YEAR	NAME
2010	ALEX
	EARL
	NORTH DAKOTA FLOOD
2011	JOPLIN TORNADOES
	SNOW STORM
2012	"DERECHO"

STATEMENT OF
ACTING CHAIRWOMAN MIGNON L. CLYBURN

Re: ***Improving the Resiliency of Mobile Communications Networks; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket 13-239; PS Docket No. 11-60**

When disaster strikes, Americans increasingly rely on their mobile phones to call 9-1-1 and to check on the well-being of those they care about. But all too often, wireless network outages in the wake of disasters leave many Americans disconnected, at precisely the time they have the greatest need to communicate. At the peak of Super Storm Sandy, for example, approximately 25 percent of cell sites in the affected region were disabled – and more than double that figure were disabled in the hardest-hit counties in New York and New Jersey. Without question, communications providers worked tirelessly in their storm ravaged areas to restore service. While some disaster-related disruptions may be inevitable, we must and can do more to prepare for future emergencies. So the question remains: what can we do to prevent such extensive wireless outages, from occurring in the first place?

Earlier this year, the Commission held field hearings to explore ways we can promote the resiliency and reliability of communications networks during disasters. We learned during Super Storm Sandy and other recent disasters that the level of cell site outages varied among wireless providers even within the same geographic area. In addition, we found that choices and practices regarding network resiliency vary among wireless service providers.

Taken together, these differences suggest that some approaches are more effective than others and that there are additional actions providers can take to improve the ability of their networks to withstand disasters and reduce service disruptions to consumers. The primary proposal in this Notice of Proposed Rulemaking does not dictate what methods wireless providers should use to harden their networks. Those decisions are best left to industry. But what would create greater transparency is information on carrier performance that, up to now, has not been publicly available. This would empower the public to hold wireless providers accountable for the results of those decisions. Specifically, we are proposing that wireless providers submit to the Commission, for public disclosure on a daily basis and immediately after major disasters, the percentage of cell sites within their networks that are operational. Providers would report this information, on a per-county basis, for the designated disaster area.

Since this data can be derived from information that providers already submit daily to the Commission, on a voluntary and presumptively confidential basis during disasters, our proposal should not impose any significant new burden on wireless providers. But our proposal could have a significant impact in other ways: making cell site outage information public, empowering consumers, and creating competitive incentives for wireless providers, to improve network resiliency during emergencies. We seek input from all stakeholders on this proposal, and many related questions.

This item builds on the Commission's existing work to improve the reliability and resiliency of the wireline communications networks that serve 9-1-1 call centers during disasters. Today, we focus on improving the reliability and resiliency of the wireless networks that are used to call 9-1-1 in the first place.

We cannot prevent disasters from happening. But we are hopeful that these actions can help keep Americans safer when emergencies do occur. I thank David Turetsky and his talented staff for crafting a thorough and well written NPRM. Again, I thank Michele Ellison and Louis Peraertz for their efforts in coordinating with the staff and my colleagues' offices on this item.

STATEMENT OF
COMMISSIONER JESSICA ROSENWORCEL

Re: ***Improving the Resiliency of Mobile Communications Networks; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket 13-239, PS Docket No. 11-60**

Last year, Hurricane Sandy ripped apart the East Coast. Our cities saw floods, coastal areas saw fires, and some communities were even waylaid by snow. Power outages were widespread. Across the affected areas, one quarter of our wireless towers failed. At the moment that so many of us needed to reach out, one of our major means of communications did not work.

Earlier this month, rain pounded on the parched ground in Colorado. By the time it stopped, hundreds of road miles were washed out. Entire towns resembled lakes. At one point, 1200 people were not accounted for—lost to family and friends. Local officials cited wireless network outages as a significant hurdle as they sought to locate survivors.

Just last week in New Jersey, a fiber-optic cable cut disrupted wireless service in towns near the shore. Homeowners without traditional landlines found themselves unable to make calls, conduct business, and reach out to neighbors.

In all of these events, we are grateful that carriers sought to fix what failed and get service up and running as soon as possible. But in disasters, days, minutes, and seconds count. While we can never make networks failproof, we should take smart steps to make sure that they are resilient.

The object lessons from Hurricane Sandy, Colorado, and New Jersey that I just recounted are unlikely to be the only episodes where essential communications get cut in crisis. But I think we have had enough examples to know that we need an honest conversation about network resiliency in the digital age. As more consumers migrate from traditional landline services to new wireless and IP services, they benefit from the new functionalities they can provide. But unlike the landline phones plugged into the wall, these new services are dependent on commercial power. This means two things. *First*, we must ask hard questions about back-up power, and how to make sure our new networks are more dependable when we need them most. *Second*, we need to make sure that consumers understand not just the benefits, but also the limitations, of new technologies when they reach out for assistance. Preparing for the unthinkable with extra batteries and solar-powered chargers when the plugs in the wall do not work is not just prudent—it is necessary.

While today's rulemaking does not proceed neatly on these lines, I believe it is essential to continue the conversation. Because making sure our networks work in disaster and can withstand mother nature's wrath will make us all stronger—and more safe.

DISSENTING STATEMENT OF COMMISSIONER AJIT PAI

Re: ***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**

Americans want wireless services that work. And with four or more wireless providers competing throughout the country, it's no wonder that wireless "carriers are rushing to expand and upgrade their networks" to meet that demand.[1] Perhaps that's why they invested $30.1 billion last year to improve their networks.[2] Perhaps that's why they've deployed 301,779 cell sites throughout the United States.[3] Perhaps that's why they are exploring heterogenous networks using small cells, distributed antenna systems, and macrocells with overlapping coverage (not to mention voluntary roaming agreements and Wi-Fi offload). They've done all these things to provide consumers the best network experience possible given the limited spectrum available for mobile broadband. To its credit, the Commission seems to appreciate these facts.

But despite acknowledging these realities, the Commission nevertheless insists today on proposing reporting requirements that would confuse and mislead consumers. Most consumers are bound to think that if the FCC requires wireless providers to report the percentage of out-of-service cell sites within a county during certain natural disasters, that information says something important about a network's reliability or resiliency. But it may not.

Just as Robert Griffin III's 63.3% completion rate doesn't tell you anything about the Washington Redskins' overall performance this year, there's no particular correlation between the percentage of inoperable cell sites and the coverage and capacity maintained by a provider during a disaster. For example, one macrocell going down can impair coverage far more than ten small cells that go out of service. So holding up percentages as a measure of reliability or resiliency is bound to mislead consumers into thinking that one provider is better than another even if, in reality, the converse is true. And not all emergencies are natural disasters—in fact, most are not. Thus, highlighting the performance of providers in select counties during only a few disasters each year sheds little light on the day-to-day reliability that may be more important for saving lives.

In short, I am disappointed that the Commission was not willing to first figure out what additional information about network reliability, if any, consumers really want and need to make informed decisions before proposing this mandate. I also have serious doubts about much of the analysis in the Notice of Proposed Rulemaking, especially in those sections addressing the costs and benefits of the proposal and the Commission's legal authority. For these reasons, I respectfully dissent.

[1] J.D. Power and Associates, Press Release, 2013 U.S. Wireless Network Quality Performance Study (Mar. 7, 2013), *available at* http://www.jdpower.com/content/press-release/VF9361y/2013-u-s-wireless-network-quality-performance-study--vol-1.htm.

[2] CTIA Semi-Annual Wireless Industry Survey, Semi-Annual Year-End 2012 Top-Line Survey Results (Chart titled "Cumulative Capital Investment Passes $365 Billion"), *available at* http://files.ctia.org/pdf/CTIA_Survey_YE_2012_Graphics-FINAL.pdf.

[3] *Id.* (Chart titled "Commercially-Operational Cell Sites in the U.S.").