Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Resilient Networks	)	PS Docket No. 21-346
	)	
Amendments to Part 4 of the Commission's Rules	)	
Concerning Disruptions to Communications	)	PS Docket No. 15-80
	)	
New Part 4 of the Commission's Rules Concerning	)	
Disruptions to Communications	)	ET Docket No. 04-35

NOTICE OF PROPOSED RULEMAKING

Adopted: September 30, 2021 **Released: October 1, 2021**

Comment Date: (30 days after date of publication in the Federal Register)
Reply Comment Date: (60 days after date of publication in the Federal Register)

By the Commission: Acting Chairwoman Rosenworcel and Commissioners Carr and Starks issuing separate statements.

I. INTRODUCTION

1. With this Notice of Proposed Rulemaking (Notice), we propose steps to improve the reliability and resiliency of communications networks during emergencies. We address these matters against the backdrop of Hurricane Ida, which hit the United States as a Category 4 hurricane and caused significant flooding and damage in several states along the Gulf Coast and the northeastern corridor of the United States. Hurricane Ida demonstrated that, while service providers' ability to restore communications in the aftermath of a devastating storm has improved, more can be done to help ensure that communications networks are sufficiently survivable to provide some continuity of service during major emergencies and to enhance the ability of service providers to restore communications when they fail.

2. Specifically, we consolidate several lines of prior inquiry to initiate this rulemaking regarding the reliability, resiliency, and continuity of communications networks. Hurricane Ida is only the most recent disaster that resulted in failures precisely when Americans most need to communicate. Recent hurricane and wildfire seasons, earthquakes in Puerto Rico, and severe winter storms in Texas demonstrate that America's communications infrastructure remains susceptible to disruption during disasters. These disruptions can prevent or delay the transmission of 911 calls, first responder communications, Emergency Alert System (EAS) and Wireless Emergency Alert (WEA) messages, and other potentially life-saving information. They also can have cascading detrimental effects on the economy and other critical infrastructures due to interdependencies among sectors, including the transportation, medical, and financial sectors. These disruptions may involve many or all communications networks – including wireline, wireless, cable, satellite, or broadcast facilities.

3. Accordingly, in this Notice, we seek comment on measures to help ensure that communications services remain operational when disasters strike. We consider whether elements of the Wireless Network Resiliency Cooperative Framework (Framework) – a voluntary agreement developed by the wireless industry in 2016 to provide mutual aid in the event of a disaster – could be improved to

enhance the reliability of communication networks.[1] We also ask whether the public would benefit from codifying some or all of the Framework into our rules. Next, we seek comment on how the Commission can better promote situational awareness during disasters through its Disaster Information Reporting System (DIRS) and Network Outage Reporting System (NORS). Finally, we explore communications resilience strategies to address one of the primary reasons for service disruptions: electric power outages.

II. BACKGROUND

4. Resilient communications networks are critical to economic growth, national security, emergency response, and nearly every facet of modern life. The Commission has long been concerned with enhancing the reliability and resiliency of the Nation's communications infrastructure. In 2004, the Commission adopted rules that require certain communications providers to supply the Commission with outage reports to address "the critical need for rapid, complete, and accurate information on service disruptions that could affect homeland security, public health or safety, and the economic well-being of our Nation, especially in view of the increasing importance of non-wireline communications in the Nation's communications networks and critical infrastructure."[2] Under these rules, service providers must submit outage reports to the Commission through NORS for outages that exceed specified duration and magnitude thresholds.[3] The Commission analyzes NORS outage reports to, in the short term, assess the magnitude of major outages, and in the long-term, identify network reliability trends and determine whether the outages likely could have been prevented or mitigated had the service providers followed certain network reliability best practices.[4]

5. In 2007, in the wake of Hurricane Katrina, the Commission established DIRS as a web-based means for service providers, including wireless, wireline, broadcast, and cable providers, to voluntarily report to the Commission their communications infrastructure status, restoration information, and situational awareness information specifically during times of crisis.[5] The Commission typically

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[1] Federal Communications Commission, *Wireless Resiliency Cooperative Framework*, https://www.fcc.gov/wireless-resiliency-cooperative-framework (last visited Sept. 1, 2021); *see also Improving the Resiliency of Mobile Wireless Communications Networks; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 11-60, 13-239, Order, 31 FCC Rcd 13745 (2016) (*Framework Order*).

[2] *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 16830 (2004) (*2004 Part 4 Report and Order*). (adopting 47 CFR Part 4).

[3] *See* 47 CFR § 4.9.

[4] *See, e.g.*, FCC, Public Safety and Homeland Security Bureau, December 27, 2018 CenturyLink Network Outage Report (PSHSB 2018), https://docs fcc.gov/public/attachments/DOC-359134A1.pdf; FCC, Public Safety and Homeland Security Bureau, March 8th, 2017 AT&T VoLTE 911 Outage Report and Recommendations, PS Docket No. 17-68 (PSHSB 2017), https://docs fcc.gov/public/attachments/DOC-344941A1.pdf; FCC, Public Safety and Homeland Security Bureau, April 2014 Multistate 911 Outage: Cause and Impact, Report and Recommendations, PS Docket No. 14-72 (PSHSB 2014), https://docs fcc.gov/public/attachments/DOC-330012A1.pdf; FCC, Public Safety and Homeland Security Bureau, Impact of the June 2012 Derecho on Communications Networks and Services, Report and Recommendations (PSHSB 2013), https://docs.fcc.gov/public/attachments/DOC-318331A1.pdf.

[5] *See Public Safety and Homeland Security Bureau Launches Disaster Information Reporting System (DIRS)*, Public Notice, 22 FCC Rcd 16757 (PSHSB 2007); *Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, EB Docket No. 06-119 et al., Order, 22 FCC Rcd 10541,10547-49, paras. 19-21 (2007) (directing the Public Safety and Homeland Security Bureau to continue its work to activate a system and process for communications companies serving areas affected by disasters to voluntarily submit information regarding among other things, the status of their operations, restoration efforts, power availability, and fuel). The Commission recently required a subset of service providers that receive Stage 2 funding from the Uniendo a Puerto Rico Fund or the Connect USVI Fund to report in DIRS when it is activated in their respective territories. *The Uniendo a Puerto Rico Fund and the Connect USVI Fund*, *et al.*, WC Docket No.

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activates DIRS for affected counties in the event of major emergencies.[6] These announcements often note that the Commission is suspending its rules on network outage reporting for DIRS participants during the activation period.[7]

6. DIRS data have provided critical situational awareness during communications outages, even when information is shared only on an aggregated or limited basis. The Commission's analysis informs restoration efforts by federal partners and the agency's own assessments of communications reliability during disasters.[8] For example, the Commission prepares and provides aggregated DIRS information, without company-identifying information, to the Department of Homeland Security (DHS), which then distributes the information to a DHS-led group of federal agencies tasked with coordinating disaster response efforts, including other units in DHS, during incidents.[9] Agencies use the analyses for their situational awareness and for determining restoration priorities for communications services and infrastructure in affected areas.[10] The Commission also provides aggregated data, without company-identifying information, to the public during disasters.[11] Recently, the Commission established a

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18-143, et al., Report and Order and Order on Reconsideration, 34 FCC Rcd 9109, 9174, 9176-77, paras. 133, 138-140 (2019) (*Puerto Rico & USVI USF Fund Report and Order*).

[6] *See, e.g.*, *Public Safety & Homeland Security Bureau Announces the Activation of the Disaster Information Reporting System for Hurricane Ida*, Public Notice, DA 21-1070 (PSHSB Aug. 29, 2021), https://docs.fcc.gov/public/attachments/DA-21-1070A1.pdf. In recent years, the Commission has activated DIRS for events including Hurricane Matthew in 2016; Hurricanes Harvey, Irma, Maria and Nate in 2017; Hurricanes Lane, Florence, and Michael in 2018; Hurricanes Barry and Dorian in 2019; Tropical Storms Isaias, Marco, and Laura as well as Hurricanes Sally, Delta, and Zeta in 2020; and for Tropical Storm Henri and Hurricane Ida in 2021. In addition, the Commission activated DIRS in response to power shutoffs in California in 2019 and for earthquakes and a derecho in 2020.

[7] *See, e.g.*, *Public Safety & Homeland Security Bureau Announces the Activation of the Disaster Information Reporting System For Hurricane Ida*, Public Notice, DA 21-1070 (PSHSB Aug. 29, 2021), https://docs.fcc.gov/public/attachments/DA-21-1070A1.pdf.

[8] *See, e.g.*, FCC, Public Safety and Homeland Security Bureau, October 2018 Hurricane Michael's Impact on Communications: Preparation, Effect, and Recovery, PS Docket No. 18-339, Report and Recommendations at 6 (PSHSB 2019), https://docs fcc.gov/public/attachments/DOC-357387A1.pdf (noting the Commission's use of DIRS data to monitor communication outages) (*Hurricane Michael Report*); Press Release, FEMA, States Impacted by Ida Receive Full Backing of Federal Force in Relief and Recovery Efforts (Sept. 3, 2021), https://www fema.gov/press-release/20210903/states-impacted-ida-receive-full-backing-federal-force-relief-and-recovery (noting Commission coordination with several partners in support of restoration efforts and daily reporting on operational status); FCC, *Disaster Information Reporting System*, https://www.fcc.gov/general/disaster-information-reporting-system-dirs-0 (last visited Sept. 7, 2021).

[9] This DHS-led group is the Emergency Support Function #2 (ESF-2), which is composed of other participants including the Department of Agriculture, Department of Commerce, Department of Defense, General Services Administration, Department of Interior, and the Federal Communications Commission. *See* Federal Emergency Management Agency, Emergency Support Function #2, Communications Annex at 1 (2016), https://www.fema.gov/sites/default/files/2020-07/fema_ESF_2_Communications.pdf.

[10] Chris Anderson, Chief, Operations and Emergency Management Division, Public Safety and Homeland Security Bureau, FCC, Response to Hurricanes Harvey, Irma, and Maria, Presentation at Commission Open Meeting at 2 (PSHSB 2017), https://docs fcc.gov/public/attachments/DOC-346920A2.pdf (describing FEMA and other federal agencies' use of DIRS information "to understand the status of communications infrastructure in…impacted areas and to set restoration priorities"). *See also* Verizon Comments, PS Docket No. 15-80, at 3-4 (rec. Apr. 30, 2020) (stating that its "work with state and local government agencies during disaster recovery and other major outage events in recent years . . . has demonstrated how network outage and status information in NORS and DIRS reports can be useful to first responders and emergency management agencies").

[11] *See* FCC, Public Safety and Homeland Security Bureau, Operations and Emergency Management Division, FCC Hurricane Response (Oct. 11, 2018), https://www fcc.gov/fcc-hurricane-response (presenting a collection of public reports released during DIRS activation periods for recent hurricanes); *see also* FCC, *Disaster Information*

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framework to provide additional federal, state, Tribal, and territorial partners with access to the critical NORS and DIRS information they need to ensure the public's safety while preserving the presumptive confidentiality of the information.[12]

7. Also following Hurricane Katrina in 2007, the Commission adopted backup power obligations in limited contexts.[13] After observing the severe impact on 911 networks across the Midwest caused by the 2012 derecho storm, the Commission took steps to promote 911 network reliability and resiliency by requiring covered 911 service providers to take reasonable measures to provide reliable 911 service, including through providing for central office backup power.[14] Covered 911 service providers must annually certify to the Commission that they have taken "reasonable measures to provide reliable 911 service with respect to 911 circuit diversity, availability of central office backup power, and diverse network monitoring," or they must certify to taking alternative measures that "are reasonably sufficient to mitigate the risk of failure or that one or more certification elements are not applicable to its network."[15] Covered 911 service providers must certify their compliance with backup power standards of 24 hours for central offices that provide administrative lines for Public Safety Answering Points (PSAPs) and 72 hours

Reporting System (DIRS), https://www fcc.gov/general/disaster-information-reporting-system-dirs-0 (last visited Sept. 24, 2021).

[12] *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications,* PS Docket No. 15-80, Second Report and Order, FCC 21-34, 2021 WL 1086309, at *13, para. 46 (2021); *see also Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications, et al.*, Third Notice of Proposed Rulemaking, FCC 21-45, 2021 WL 1603461, at *13-16, paras. 36-46 (2021).

[13] In 2007, the Commission adopted a rule requiring Commercial Mobile Radio Service (CMRS) providers and local exchange carriers to maintain emergency backup power for a minimum of 24 hours for assets inside central offices and eight hours for cell sites, remote switches, and digital loop carrier system remote terminals. *See Recommendations of the Hurricane Katrina Review Panel*, EB Docket No. 06-119, WC Docket No. 06-63, Order, 22 FCC Rcd 10541, 10565, para. 77 (2007) (announcing requirements for "all local exchange carriers (LECs), including incumbent LECs (ILECs) and competitive LECs (CLECs), as well as commercial mobile radio service (CMRS) providers"); s*ee also Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks,* EB Docket No. 06-119, WC Docket No. 06-63, Order on Reconsideration, 22 FCC Rcd 18013, 18035 (2007). The wireless industry appealed the requirements on several grounds. *See* Petition for Reconsideration, CTIA- The Wireless Association, EB Docket No. 06-119 *et al.* (Aug. 10, 2007); Petition for Reconsideration, PCIA- The Wireless Infrastructure Association, EB Docket No. 06-119 *et al.* (August 10, 2007); *see also CTIA- The Wireless Association v. FCC*, 530 F.3d 984, 986, 989 (D.C. Cir. 2008). After the Office of Management and Budget (OMB) rejected the proposed information collection that was a prerequisite to the rules taking effect, Commission stated its intent to revise the backup power requirements, and the D.C. Circuit Court dismissed the petitions for review as moot and vacated the challenged rules. *See* Office of Mgmt. & Budget, Executive Office of the President, Notice of Office of Mgmt. & Budget Action (2008), https://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=200802-3060-019; Letter from Nandan M. Joshi, Counsel for FCC, to Mark Langer, Clerk of the U.S. Court of Appeals for the District of Columbia Circuit (Dec. 3, 2008); *CTIA – The Wireless Association v. FCC*, No. 07-1475 (D.C. Cir. filed July 31, 2009). The Commission ultimately deleted its backup power requirements in 2011. *Redundancy of Communications Systems: Backup Power*, Order, 26 FCC Rcd 15453 (PSHSB and OMD 2011).

[14] *See Improving 911 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 13-75 and 11-60, Report and Order, 28 FCC Rcd 17476, 17477, paras. 1-2 (2013) (*911 Reliability Order*); 47 CFR § 9.19(a)(4) (defining a "covered 911 service provider" as an entity that provides 911, E911, or [Next Generation 911 (NG911)] capabilities such as call routing, automatic location information (ALI), automatic number identification (ANI), or the functional equivalent of those capabilities, directly to a [Public Safety Answering Point (PSAP)], statewide default answering point, or appropriate local emergency authority, or an entity that operates one or more central offices that directly serve a PSAP).

[15] 47 CFR § 9.19(b).

for central offices that have a selective router that directs 911 calls.[16] Further, the Commission has adopted rules requiring that providers of facilities-based, fixed voice service offered as a residential service provide their subscribers the options to purchase, at the point of sale, solutions that provide 8 and 24 hours of backup power for the service.[17]

8. In 2013, in the wake of Superstorm Sandy, the Commission again took up the issue of communications infrastructure resiliency, particularly that of wireless resiliency; specifically, the Commission proposed to require facilities-based Commercial Mobile Radio Service providers to submit to the Commission for public disclosure, on a daily basis during and immediately after major disasters, the percentage of cell sites within their networks that are providing service.[18] On December 14, 2016, in lieu of adopting this proposal, the Commission adopted an Order supporting the voluntary Framework, intended to promote resilient communications and situational awareness during disasters.[19] The Framework commits its participants to five prongs: providing for reasonable roaming arrangements during disasters when technically feasible; fostering mutual aid during emergencies; enhancing municipal preparedness and restoration; increasing consumer readiness and preparation; and improving public awareness and stakeholder communications on service and restoration status.[20] An emergency or disaster activates the Framework where the Federal Emergency Management Agency (FEMA) activates ESF-2[21] and the Commission activates DIRS.[22]

9. In 2017, the Government Accountability Office (GAO), in conjunction with its review of federal efforts to improve the resiliency of wireless networks during natural disasters and other physical incidents, released a report recommending that the Commission should improve its monitoring of industry efforts to strengthen wireless network resiliency.[23] The GAO found that the number of wireless outages attributed to a physical incident—a natural disaster, accident, or other manmade event, such as vandalism—increased from 189 in 2009 to 1,079 in 2016. The GAO concluded that more robust measures and a better plan to monitor the Framework would help the FCC collect information on the Framework and evaluate its effectiveness, and that such steps could help the FCC decide if further action is needed. In light of prolonged outages during several emergency events in 2017 and 2018, and in

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[16] *See* 47 CFR § 9.19; s*ee also 911 Reliability Order*, 28 FCC Rcd 17476 (adopting 911 certification rules); *Improving 911 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies,* PS Docket Nos. 13-75 and 11-60, Order on Reconsideration, 30 FCC Rcd 8650 (2015) (clarifying that covered 911 service providers may implement and certify an alternative measure for any of the specific elements, as long as they "provide an explanation of how such alternative measures are reasonably sufficient to mitigate the risk of failure").

[17] *See* 47 CFR § 9.20; *see also Ensuring Continuity of 911 Communications*, PS Docket No. 14-174, Report and Order, 30 FCC Rcd 8677 (2015).

[18] *See Improving the Resiliency of Mobile Wireless Communications Networks; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 13-239 and 11-60, Notice of Proposed Rulemaking, 28 FCC Rcd 14373 (2013).

[19] *See Framework Order*, 31 FCC Rcd at 13745-46, paras. 1-2.

[20] *Id.* at 13747, para. 5.

[21] ESFs provide the structure for coordinating Federal interagency support for a Federal response to an incident. ESF-2 coordinates Federal actions to assist industry in restoring the public communications infrastructure and to assist State, tribal, and local governments with emergency communications and restoration of public safety communications systems and first responder networks. *See* U.S. Department of Homeland Security, Emergency Support Function #2- Communications Annex (2008), https://www.fema.gov/pdf/emergency/nrf/nrf-esf-02.pdf.

[22] *See Framework Order*, 31 FCC Rcd at 13747, para. 6.

[23] Government Accountability Office, FCC Should Improve Monitoring of Industry Efforts to Strengthen Wireless Network Resiliency at 36 (2017), https://www.gao.gov/assets/gao-18-198.pdf (GAO Report). The report recommended that the Commission develop specific and measurable objectives for the Framework and a plan to monitor and document the outputs and outcomes of the Framework to evaluate its effectiveness.

parallel with the GAO recommendations, the Public Safety and Homeland Security Bureau (Bureau) conducted several inquiries[24] and investigations[25] to better understand and track the output and effectiveness of the Framework and other voluntary coordination efforts that promote wireless network resiliency and situational awareness during and after these hurricanes and other emergencies.

10. In the days leading up to landfall of Hurricane Ida on August 29, 2021, the FCC had begun coordinating response activities with the State of Louisiana, the Federal Emergency Management Agency, the Cybersecurity and Infrastructure Security Agency, and members of the Communications Information Sharing and Analysis Center (Comm-ISAC) and to determine potential impacts, challenges, and mutual aid resources. The Commission had already deployed agents to support the Louisiana Emergency Operations Center (EOC) and to conduct baseline surveys of communications as well as to provide coordination and spectrum management support. Communications companies had also begun pre-positioning mobile communications assets in safe zones just outside the potential impact areas in order to rapidly deploy much-needed services, post landfall. Ida had significant physical impacts on both power and communications infrastructure, which had cascading consequences on interdependent public safety communications infrastructure and services such as PSAPs and Louisiana's land mobile radio public safety communications network.

11. Following Hurricane Ida's departure, the Commission began supporting recovery work in earnest. The Commission reminded communications industry of its commitments in the Framework and encouraged wireless providers, specifically, to activate roaming in areas where cellular communications were hardest hit. Even after roaming had been activated in limited areas, communications remained diminished as communications companies were working to repair, replace, and restore communications infrastructure. Immediately after the storm, 28.1 percent of cell sites were down across the affected counties. Louisiana was hardest hit in this respect, with more than 50 percent of sites down in the affected counties on August 30. At its peak, Louisiana had three PSAPs offline due to damaged power and communications infrastructure, and other PSAPs were impacted and rerouted calls as generators began to fail. Commission personnel communicated with the Louisiana Association of Broadcasters to determine unmet fuel, communications, and power needs of state broadcasters and to facilitate the provision of much needed resources and services.

12. Commission staff also conducted on-the-ground assessments of communications infrastructure to provide emergency management officials intelligence and to assist with the identification

[24] *See Public Safety and Homeland Security Bureau Seeks Comment on the Effectiveness of the Wireless Network Resiliency Cooperative Framework and for the Study on Public Access to 911 Services during Emergencies,* PS Docket No. 11-60, Public Notice, 33 FCC Rcd 5997 (PSHSB 2018) (*Framework Effectiveness Public Notice*); News Release, FCC, FCC Launches Re-Examination of Wireless Resiliency Framework in Light of Recent Hurricanes, *Agency Sends Letters to Framework Signatories Asking Them to Provide Post-Disaster Action Reports* (Nov. 6, 2018), https://docs.fcc.gov/public/attachments/DOC-354963A1.pdf. The Bureau also issued three Public Notices seeking comment on improvements to the Framework. *See Public Safety and Homeland Security Bureau Seeks Comment on Improving Wireless Network Resiliency to Promote Coordination through Backhaul Providers*, PS Docket No. 11-60, Public Notice, DA 18-1238 (PSHSB Dec. 10, 2018) (*Backhaul Public Notice*); *Public Safety and Homeland Security Bureau Seeks Comment on Improving Wireless Network Resiliency Through Encouraging Coordination with Power Companies*, PS Docket No. 11-60, Public Notice, DA 19-13 (PSHSB Jan. 03, 2019) (*Power Public Notice*); *Public Safety and Homeland Security Bureau Seeks Comment on Improving the Wireless Network Resiliency Cooperative Framework*, PS Docket No. 11-60, Public Notice, DA 19-242 (PSHSB Apr. 1, 2019) (*Effectiveness Public Notice*). In February 2020, following a series of PSHSB staff coordination meetings with wireless, backhaul and electric service providers to discuss the gaps identified in the above record, CTIA and the Edison Electric Institute formed the Cross-Sector Resiliency Forum on February 27, 2020 and released a 12-step action plan to improving wireless resiliency.

[25] Following Hurricane Michael, for example, the Bureau issued a report on the preparation and response of communications providers finding three key reasons for prolonged outages during that event: insufficiently resilient backhaul connectivity; inadequate reciprocal roaming arrangements; and lack of coordination between wireless service providers, power crews, and municipalities. *See Hurricane Michael Report* at 4, para. 6.

of critical communications infrastructure, including responding to additional unintentional damage occurring during repairs to the communications and power infrastructure. The Commission also issued special temporary authorizations (STAs) and, *sua sponte*, numerous orders to provide regulatory relief in support of providers' restoration efforts, including waivers of deadlines and technical requirements, as well as providing relief to impacted consumers.[26] This work remains ongoing as recovery continues.

III. NOTICE OF PROPOSED RULEMAKING

A. Improving the Wireless Network Resiliency Cooperative Framework

13. The voluntary Framework plays a central role in how wireless providers prepare for and respond to emergencies. Over the years, the Commission has examined and re-examined the efficacy of the Framework for purposes of restoring communications during and following disasters. These inquiries suggest that providers take a multifaceted approach to disaster readiness and response, with the aim of improving the public's safety during natural disasters. Wireless provider efforts have included investments in network resiliency, reinforcing network coverage and capacity, conducting site-based preparatory work, and making plans to mitigate commercial power failures, as well as utilizing commercial roaming agreements, working with government partners, and educating consumers on preparedness. These initiatives have helped to keep more Americans connected and informed even during major disasters.

14. However, these inquiries also show that there are both gaps in the Framework's coverage and, during some recent disasters, delays in its implementation, including technical challenges associated with roaming implementation among signatory companies. Further, as explained below, there are some disaster situations where the Framework, by its owns terms, would not go into effect. These findings from our prior inquiries suggest there may be targeted opportunities to improve the voluntary Framework and network resiliency – not just of wireless networks, but of communications networks as a whole. We seek comment on those opportunities below. We also seek comment on whether the Commission should revisit the voluntary nature of the Framework.

15. *Framework Activation*. Currently, the Framework only applies when both ESF-2 and DIRS are activated. As a result, there may be circumstances where the Framework is not activated but where mutual aid or other support obligations are warranted. For example, the Framework has not been operational during the California power shutoffs and wildfires because ESF-2 was not activated. To address this gap, should we work with carriers to revisit the prerequisites, e.g., the types of emergencies or other declarations (ESF-2 and DIRS activation) that trigger the Framework or that govern the duration of its obligations? If so, what should those triggers and durations be?

16. *Scope of Framework Participants.* We seek comment on whether expanding the scope of the Framework participants could enhance its effectiveness. Currently, signatories to the Framework include only AT&T Mobility, CTIA, GCI, Southern Linc, T-Mobile, U.S. Cellular, and Verizon

[26] *See* FCC, *Hurricane Ida*, https://www.fcc.gov/Ida (last visited Sept. 7, 2021).

Wireless.[27] Additionally, the Competitive Carriers Association filed a letter supporting the Framework.[28] As the list of signatories demonstrates, there are a number of wireless providers who are not signatories to the Framework. Further, the Framework signatories only include wireless providers. Would greater participation in the Framework enhance its effectiveness? Are there steps the Commission can take to encourage voluntary participation beyond the scope of the existing signatories, such as to include smaller wireless providers, or entities beyond the mobile-wireless industry, such as facilities-based backhaul providers, covered 911 service providers, cable, wireline, broadcast, satellite, or interconnected VoIP providers? Should the Framework or portions of the Framework be expanded to include any other stakeholders or organizations?

17. *Improving Wireless Roaming*. The Framework commits its signatories to provide reasonable roaming in situations where: "(i) a requesting carrier's network has become inoperable and the requesting carrier has taken all appropriate steps to attempt to restore its own network, and (ii) the home carrier has determined that roaming is technically feasible and will not adversely affect service to the home carrier's own subscribers," with such roaming arrangements "limited in duration and contingent on the requesting carrier taking all possible steps to restore service on its own network as quickly as possible."[29]

18. Recent events suggest that roaming during disaster contexts can be improved. As the *Hurricane Michael Report* found, "at least *some* wireless providers did not take advantage of the types of disaster-related roaming agreements envisioned in the Framework, allowing their customers to remain in the dark rather than roam on a competitor's network."[30] During Hurricane Ida, there was limited transparency, and therefore understanding, regarding the status of roaming, including where it was available and where it was not, and which network technologies were utilized. We seek comment on how best to address these issues through the voluntary Framework. Are the current Framework pre-requisites to triggering disaster roaming too restrictive, to the detriment of consumers? In particular, we seek comment on improvements to the Framework to ensure roaming is operational prior to an event and seamless during emergencies – addressing both resiliency and restoration – such as annual testing of roaming capabilities and coordination processes.[31] Are there other improvements that can be made to ensure that roaming is made available in a timely manner and for the benefit of the maximum population possible? For example, should there be minimum timeframes by which a provider must respond to a disaster roaming request? Are there conditions or other criteria that could be incorporated into the Framework to determine that, once met, roaming should be available automatically in qualifying disaster

[27] *See* Letter from Joan Marsh, AT&T; Charles McKee, Sprint; Grant Spellmeyer, U.S. Cellular; Scott Bergmann, CTIA; Steve Sharkey, T-Mobile; and William H. Johnson, Verizon, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket Nos. 11-60, 13-239 (filed Apr. 27, 2016) (providing notice of their adoption of the Framework) (Framework Letter); Letter from Kara Leibin Azocar, Regulatory Counsel, Federal Affairs, GCI Communication Corp to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket Nos. 11-60, 13-239 (filed Sept. 1. 2017) (providing notice of its intent to participate in the Framework); Letter from Michael D. Rosenthal, Director of Legal and External Affairs, Southern Communications Services, Inc. d/b/a Southern Linc to Marlene Dortch, Secretary, Federal Communications Commission, PS Docker Nos. 11-60, 13-239 (filed Sept. 5, 2017) (providing notice of its intent to participate in the Framework). Sprint was also a signatory prior to its merger with T-Mobile. *See* Framework Letter at 1, 4.

[28] *See* Letter from Rebecca Murphy Thompson, EVP & General Counsel, Competitive Carriers Association to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 11-60, 13-239 (filed May 31, 2016) (providing notice of its support of the Framework).

[29] *Framework Order*, 31 FCC at 13752-53, para 19.

[30] *Hurricane Michael Report* at 23, para. 50.

[31] *See, e.g.*, Verizon *Effectiveness Public Notice* Comments, PS Docket No. 11-60, at 3 (rec. Apr. 29, 2019) ("Even where devices have capabilities to operate across multiple technologies (e.g., CDMA, GSM/UMTS and LTE), substantial numbers of devices onto roaming partner networks utilizing different technologies will continue to present operational complexities.").

areas? If a roaming request is deemed technically infeasible, how should that determination be conveyed? What criteria should be used to determine whether roaming is technically feasible? Have there been instances where roaming requests have been unreasonably denied or responses to such requests have been unreasonably delayed, or where the roaming-related provisions of the Framework did not work as intended? During Hurricane Ida, we understand that initial requests for roaming under the Framework focused on access to 3G networks. Are there benefits to encouraging roaming access to newer generations of network technology and, if so, how can the Commission best support such arrangements? To what extent do capacity challenges or network configuration issues also hinder effective roaming, and how should any improvements to the Framework account for this concern? Should there be any improvement in the standards or their implementations to ensure the emergency roaming is automatically and seamlessly accessible to user devices without requiring any action from the user? Can providers' readiness to execute such disaster-triggered roaming be verified and tested? What are the public safety benefits and costs associated with these improvements in wireless roaming?

19. *Fostering Mutual Aid*. The Framework commits its signatories to foster mutual aid during disasters. Nevertheless, we observed prolonged outages during Hurricane Ida.[32] We seek comment on how signatories fostered mutual aid, such as through sharing physical assets, during Hurricane Ida and other recent disasters, and how effective this mutual aid has been in ensuring continuity of communications. Are there instances in which reasonable requests for mutual aid were denied by wireless providers? Should the Framework do more to strengthen the effectiveness of mutual aid?[33] What benefits would accrue if other segments of the communications industry – such as cable, wireline, and broadcast – agreed to foster mutual aid during disasters?

20. *Enhancing Municipal Preparedness and Restoration*. Framework signatories convened with local government representatives' public safety subject matter experts and developed best practices to facilitate coordination before, during, and after emergencies and disasters in order to maintain and restore wireless service continuity.[34] Were these best practices utilized in Hurricane Ida and other disasters, and how effective were these best practices in real-world conditions? Should they be updated in light of lessons learned from these disasters?[35] Are there additional actions that wireless providers and other stakeholders (e.g., backhaul service, wireline service providers) can take to ensure appropriate and effective coordination with local agencies to mitigate the impact of service disruptions? What are the respective costs and benefits? For example, should providers establish processes for sharing real-time restoration efforts? Should the Framework include coordination obligations and particular coordination activities or best practices? Are there are other steps that the Commission can take to improve coordination? The Commission also seeks comment on the recommendations of the Broadband Deployment Advisory Committee's Disaster Response and Recovery Working Group pertaining to

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[32] *See* Hurricane Ida Status Reports (showing in the affected counties in Louisiana 52.1% of cell sites were out of service in the immediate aftermath of the storm and 38.1% remained out of service two days later).

[33] *See, e.g.* Letter from Harold Feld, Senior Vice President, Public Knowledge, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-80 et al., at 2 (Sept. 14, 2021) (recommending that "we should encourage providers to share resources immediately before, during, and after the crisis").

[34] These best practices are available on CTIA's website. *See* CTIA, *Wireless Resiliency Cooperative Framework: Best Practices for Enhancing Emergency and Disaster Preparedness and Restoration*, https://www.ctia.org/the-wireless-industry/industry-commitments/wireless-network-resiliency-cooperative-framework (last visited Sept. 1, 2021).

[35] Verizon suggests that the lessons learned during the 2017-2018 hurricane and wildfire seasons demonstrates the importance of the Framework remaining a "living document" and that the Framework enables a wireless provider to nimbly adapt its practices to the next disaster's unique challenges. *See* Verizon *Effectiveness Public Notice* Comments at 1. *See also* Disaster Response and Recovery Working Group, Presentation to Broadband Deployment Advisory Committee (Sept. 19, 2019), https://www fcc.gov/sites/default/files/bdac-disaster-response-recovery-09192019.pdf; Disaster Response and Recovery Working Group, Presentation to Broadband Deployment Advisory Committee (Dec. 3, 2019), https://www.fcc.gov/sites/default/files/bdac-disaster-response-recovery-12032019.pdf.

coordination with local governments and building and maintaining formal relationships across industry and government stakeholders, and coordination and information sharing between stakeholders during the disaster planning and recovery phases.[36]

21. *Increasing Local Preparedness and Consumer Readiness*. The Framework commits signatories to increase consumer readiness and preparation through the development and dissemination with consumer groups of a Consumer Readiness Checklist.[37] Is there evidence that the public is aware of this checklist? How is it promoted? Are there other steps that wireless providers should take to foster local preparedness and consumer readiness in the face of natural disasters, such as public service announcements? What are the benefits and costs associated with those steps? Should the Commission explore additional consumer awareness and preparedness activities?

22. What measures are in place to ensure that information is accessible to all Americans? Consumer groups note that the deaf and hard-of-hearing communities often rely on multiple forms of communications before and during emergencies, and recommend that signatories work with these communities to ensure information is accessible.[38] Should the Framework require signatories to conduct outreach through multiple forms of communication, such as public service announcements on television, radio, and social media that is accessible to both hard-of-hearing and non-English speaking communities?[39] Should the Framework require signatories to meet with groups representing persons with disabilities to provide information on emergency planning and resources?[40] Are there other steps the Commission should take to improve communications with these and other communities?

23. *Improving Public Awareness*. Finally, the Framework commits signatories to improve public awareness and stakeholder communications on service and restoration status, through sharing DIRS data on cell site outages on an aggregated, county-by-county basis in the relevant geographic area. Since the Framework was released, signatories have agreed to share additional data with the public, including more granular data on the cause of cell site outages and the number of in-service cell sites operating on backup power.[41] The Commission has also requested comment on whether other outage

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[36] *See* Report and Recommendations of the Disaster Response and Recovery Working Group, Presentation to the Broadband Deployment Advisory Committee (Mar. 27, 2020), https://www fcc.gov/sites/default/files/bdac-disaster-response-recovery-approved-rec-03272020.pdf.

[37] The checklist is available on CTIA's website. CTIA, *Consumer Resources – Emergency Preparedness*, https://www.ctia.org/emergency-preparedness (last visited Aug. 31, 2021).

[38] *See, e.g.*, Telecommunications for the Deaf and Hard of Hearing, Inc., Hearing Loss Association of America, National Association of the Deaf, Coalition on Inclusive Emergency Planning/Washington State Independent Living Council, and California Coalition of Agencies Serving the Deaf and Hard of Hearing, Inc. *Effectiveness Public Notice* Comments, PS Docket No. 11-60, at 7-10, 12 (rec. Apr. 29, 2019) (Consumer Groups *Effectiveness Public Notice* Comments). Signatories have provided details of their current consumer outreach efforts to provide subscribers with updated information and hurricane preparation tips using social media outlets, issuing press releases, and disseminating information through consumer groups. *See, e.g.*, T-Mobile Response at 16.

[39] Verizon suggests providers can maintain a dedicated website for a specific disaster event. Verizon *Effectiveness Public Notice* Comments at 7-8.

[40] *See* Consumer Groups *Effectiveness Public Notice* Comments at 12-13; Wireless RERC *Effectiveness Public Notice* Reply Comments, PS Docket No. 11-60, at 6 (rec. May 20, 2019); CTIA *Effectiveness Public Notice* Reply Comments, PS Docket No. 11-60, at 3 (rec. May 20, 2019).

[41] Email from Grant Spellmeyer, Vice President- Federal Affairs & Public Policy, U.S. Cellular Corp., to Jeffery Goldthorp et al., Associate Chief, FCC Public Safety and Homeland Security Bureau (Dec. 10, 2018, 10:25 EST); Email from Steve Sharkey, Vice President, Government Affairs, Engineering and Technology Policy, T-Mobile, to Jeffery Goldthorp et al., Associate Chief, FCC Public Safety and Homeland Security Bureau (Dec. 10, 2018, 13:09 EST); Email from Ray Rothermel, Counsel – Legal/Government Affairs, Sprint Corporation, to Jeffery Goldthorp, Associate Chief, FCC Public Safety and Homeland Security Bureau (Dec. 11 2018, 07:37 EST); Email from Bryant Peters, External Affairs Specialist, Legal and External Affairs, Southern Linc, to Jeffery Goldthorp et al., Associate

(continued….)

data, e.g., whether the service disruption extends to 911 service, should be disclosed to the public.[42] Would public disclosure of additional information regarding service disruptions promote public safety? If so, what additional information should be disclosed? What are the benefits and costs associated with releasing this information directly to the public? What mechanisms are in place in communities to impart awareness about recovery planning and long term-term resiliency, and are those mechanisms accessible to persons with disabilities?[43] How might those mechanisms differ across communities or geographic areas, and how can those differences be accommodated by Framework signatories?

24. *Scope of Framework Obligations.* We seek comment on the scope of the Framework's obligations. Should we expand the scope of what is expected in the event of a disaster? What additional or revised measures are warranted to address gaps in promoting resiliency and what are their costs and benefits? For example, should the voluntary Framework include provisions regarding the placement of back-up systems, such as Cells on Light Trucks, so that they are ready to deploy for vulnerable infrastructure to improve service restoration time? Should the Framework include requirements for restoration or prioritization of text-to-911 capability in areas where the PSAP is text-capable, as text-to-911 can be an important communications solution in emergencies, particularly for individuals with disabilities?[44] Should the Framework include provisions that address backhaul redundancy and resiliency? For example, could the Framework address a limit on the number of cell sites operating on a single backhaul fiber link? What other steps would promote backhaul resiliency during disasters?

25. *Framework-Related Reporting.* We seek comment on whether we should require wireless providers to submit reports to the Commission detailing implementation of the voluntary Framework in real time or in the aftermath of a disaster. What are the benefits and costs associated with such a reporting requirement? We seek comment on what information these reports should include, such as specific information related to the way the provider adhered to any roaming, mutual aid, consumer outreach, or related provisions of the Framework suggested above. For example, should the Commission be notified when roaming has been activated or refused, including information on which generational technologies it has been activated, and as to which providers are roaming on which networks? Should the Commission be notified when resources or services are shared through mutual aid? How soon after wireless provider action should such notifications be made and how should they be made?

26. *Codifying the Framework*. In response to our prior inquiries, some commenters have urged the Commission to reexamine the voluntary nature of the Framework.[45] Some of these commenters highlight the Commission's *Hurricane Michael Report* to suggest that existing voluntary coordination efforts, including the Framework, may not be sufficient to promote wireless network resiliency and

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Chief, FCC Public Safety and Homeland Security Bureau (Dec. 10, 2018, 15:02 EST); Email from Kara Leibin Azocar, Regulatory Counsel, Federal Affairs, GCI Communication Corp., to Jeffery Goldthorp et al., Associate Chief, FCC Public Safety and Homeland Security Bureau (Dec. 7, 2018, 11:25 EST); Email from Jamie M. Tan, Director- Federal Regulatory, AT&T Services, Inc., to Jeffery Goldthorp et al., Associate Chief, FCC Public Safety and Homeland Security Bureau (Dec.10, 2018, 13:53 EST); Email from Robert Morse, Associate General Counsel, Verizon, to Jeffery Goldthorp et al., Associate Chief, FCC Public Safety and Homeland Security Bureau (Nov. 30, 2018, 07:26 EST).

[42] *See Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications, et al.*, Third Notice of Proposed Rulemaking, FCC 21-45, 2021 WL 1603461, at *13-16, paras. 36-46 (Apr. 22, 2021).

[43] *See* Consumer Groups *Effectiveness Public Notice* Comments at 11.

[44] *See* Consumer Groups *Effectiveness Public Notice* Reply Comments, PS Docket No. 11-60, at 4 (rec. May 20, 2019).

[45] *See, e.g.*, Free Press Comments, PS Docket No. 11-60, at 2 (rec. Apr. 26, 2021) (urging the Commission to re-examine the sufficiency of the Framework, including its voluntary nature); The Association of Public Safety Communications Officials- International Inc. Comments, PS Docket No. 11-60, at 4 (rec. May 20, 2019) (asserting that the voluntary approach to wireless resiliency has failed).

situational awareness during and immediately after emergencies.[46] Accordingly, we seek comment on whether some or all of the existing or a modified Framework should be mandatory, and for whom. What are the costs and benefits of doing so? We also seek comment on our legal authority to mandate disaster-based obligations in line with the existing or an expanded Framework. Would the aggregate of these solutions address the failures highlighted by the *Hurricane Michael Report* or should additional measures be considered?[47] Finally, we seek comment on how the Commission should enforce any mandatory obligations that are not met.

B. Promoting Situational Awareness During Disasters

27. Over the years, our experience has shown that DIRS and NORS are vital public safety tools that equip the Commission and its federal and local partners with actionable situational awareness information for identifying and resolving threats to 911 and other emergency service communications.[48] DIRS broadly collects infrastructure status information about the nation's communications networks, but participation is voluntary for the nation's service providers.[49] The Commission initially grounded its voluntary approach on observations that a voluntary paradigm worked well during Hurricane Katrina and that a mandatory reporting process would likely not be adaptable to unique aspects of each particular crisis.[50] Since that time, the Commission has observed that, while the nation's large providers typically elect to voluntarily report in DIRS, smaller providers often do not. This not only reduces the total number of DIRS filings available to inform the Commission's analysis of network reliability, but also reduces the Commission's situational awareness, including awareness of the state of 911 and other emergency services, in locations served by smaller providers, which are often vulnerable rural or other hard to access areas. This also creates ambiguity about whether a provider's lack of DIRS filings means that its network infrastructure actually remains undamaged, it is choosing not to voluntarily participate in DIRS, or it is unable to file, e.g., because it cannot access DIRS due to disruption of its Internet access.

28. Meanwhile, NORS participation is mandatory, but it is centered on disruptions to voice telephony. Under our rules, certain service providers—wireline, cable, satellite, wireless, interconnected VoIP, and Signaling System 7 providers—must submit outage reports to NORS for voice and other outages that exceed specified duration and magnitude thresholds.[51] Service providers are required to

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[46] *See id.*; *see also* National Association of State 911 Administrators *Framework Effectiveness Public Notice* Comments, PS Docket No. 11-60, at 1 (rec. July 16, 2018) (suggesting the Commission should require signatories to report network outages based on metrics the Commission and providers agree to); The City of New York *Framework Effectiveness Public Notice* Reply Comments, PS Docket No. 11-60, at 2 (rec. July 31, 2018) (stating the Commission should require regular reporting by signatories on implementation of the Framework and other best practices); City of San Francisco *Power Public Notice* Comments, PS Docket No. 11-60, at 1-2 (rec. Feb. 8, 2019) (suggesting the Commission should require wireless providers to coordinate their resiliency plans with state, regional, and local planning agencies).

[47] *See Hurricane Michael Report* at 4, para. 6.

[48] *See supra* note 10. DIRS focuses on infrastructure status information rather than service outage information, as in NORS. NORS thus draws a distinction between service outages that affect just 911 and other types of service outages. Currently, there is limited visibility on how disasters impact 911 service specifically. Requiring DIRS reporting in the event of disaster-related outages would help to close this information gap. *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications,* PS Docket No. 15-80, Second Report and Order, 36 FCC Rcd 6136, 6139, paras. 8, 9 (2021).

[49] While DIRS is voluntary, the Commission recently required a subset of service providers that choose to accept Stage 2 funding from the Uniendo a Puerto Rico Fund or the Connect USVI Fund to report in DIRS when it is activated in their respective territories. *Puerto Rico & USVI USF Fund Report and Order*, 34 FCC Rcd at 9174, 9176-77, paras. 133, 138-140.

[50] *Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, EB Docket No. 06-119 et al., Order, 22 FCC Rcd 10541, 10549, para. 22 (2007).

[51] 47 CFR § 4.9; *see also 2004 Part 4 Report and Order*, 19 FCC Rcd 16830 (adopting 47 CFR Part 4).

submit a preliminary notification within two hours after determining that an outage is reportable, followed by an initial outage report within three calendar days, and a final report no later than 30 days after discovering the outage.[52] These reports are intended to address "the critical need for rapid, complete, and accurate information on service disruptions that could affect homeland security, public health or safety, and the economic well-being of our Nation . . . ."[53] The Bureau analyzes NORS data to assess the magnitude of major outages, identify trends, and promote network reliability. However, these outage reporting requirements do not collect information about disruptions specifically to broadband service.[54] This means the Commission has limited situational awareness about outages involving broadband service.[55]

29. We seek comment on steps the Commission can take to address these issues and encourage better situational awareness through DIRS and NORS. Starting with DIRS, are there steps the Commission can take to encourage broader voluntary participation during disasters, including from smaller providers? Alternatively, should the Commission consider requiring the nation's service providers, i.e., cable providers, Direct Broadcast Satellite providers, Satellite Digital Audio Radio Service, TV and radio broadcasters, Commercial Mobile Radio Service and other wireless service providers, wireline providers, and VoIP providers, to report their infrastructure status information in DIRS when the Commission activates DIRS in geographic areas in which they broadcast or otherwise provide service? We recognize that a proposed requirement to file in DIRS must be balanced against additional burdens on service providers, particularly as DIRS reports are filed in the midst of disasters and other emergencies. If we were to explore requiring DIRS filing, we seek comment on our legal authority to do so, the costs and benefits associated with mandatory reporting, and how the Commission should enforce any failure to file DIRS information.

30. With respect to NORS, we seek comment on the public interest benefits and the costs of reporting of broadband service outages. Would such reporting likewise improve emergency managers' situational awareness during disasters? Or do public safety officials and others currently have access to broadband service outage data through other means? Could this data be leveraged to help identify broadband outage trends, and if so, how could this knowledge support first response and network reliability efforts?

31. We seek comment on suspension of NORS reporting requirements during disasters. Under our current voluntary DIRS reporting approach, the Bureau suspends NORS reporting obligations, via Public Notice, for providers who elect to report in DIRS for the duration of its activation period.[56] Formally codifying this practice in our rules may give providers more clarity on their obligations and streamline and formalize existing practices. We therefore seek comment on whether to codify in our part 4 rules the Commission's typical practice of granting to providers a waiver of their NORS reporting

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[52] *See id.* Interconnected VoIP providers are subject to different timelines and must submit a NORS notification either: 1) within 240 minutes after discovering an outage that potentially affects a 911 facility or 2) within 24 hours of discovering an outage which affects potentially 900,000 user minutes and results in a complete loss of service or potentially affects any special offices and facilities. They must also file a final report within 30 days of discovering the outage. 47 CFR § 4.9(g).

[53] *2004 Part 4 Report and Order*, 19 FCC Rcd at 16833, para. 1.

[54] *See* 47 CFR § 4.9. The Commission has previously sought comment on whether broadband outages should be reported in NORS. *See Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications*, Report and Order, Further Notice of Proposed Rulemaking, and Order on Reconsideration, 31 FCC Rcd 5817, 5863-76 (2016) (*2016 Report and Order and Further Notice*).

[55] *See, e.g.*, *2016 Report and Order and Further Notice*, 31 FCC Rcd at 5855-63, paras. 91-107 (noting that broadband networks provide an increasing portion of emergency and non-emergency communications and discussing the need for more consistent and reliable data on broadband outages).

[56] *See, e.g.*, *Public Safety & Homeland Security Bureau Announces the Activation of the Disaster Information Reporting System for Hurricane Zeta*, Public Notice, DA 20-1273, at 1 (PSHSB Oct. 28, 2020).

requirements when they report the outage in DIRS. Are there needs of public safety officials or others that are not being met by the current reporting practices? If so, will such gaps remain when our NORS and DIRS information sharing rules become effective?[57]

32. We note that there may be instances in which DIRS is deactivated but some providers have not yet fully restored service, resulting in limited continuing outages. In these instances, the Commission no longer has situational awareness as to the status of those providers' services, because updates are no longer being filed in DIRS and the outage was never filed in NORS. We seek comment on how to best address this gap and ensure that the Commission maintains situational awareness of outages. Should providers with ongoing outages at the time of DIRS deactivation be required to report those outages in NORS?

33. In light of the concerns noted above, we also seek comment on steps the Commission can take to increase its situational awareness of the state of 911 and other emergency services.

C. Addressing Power Outages

34. The recent devastation wrought by Hurricane Ida, which left hundreds of thousands of Louisianans without power, water, and other basic utilities,[58] also extended to the region's communications infrastructure.[59] NORS and DIRS data collected by the Commission in the aftermath of Hurricane Ida and other recent disaster events reveal that a lack of commercial power at key equipment and facilities is the single biggest reason why communications networks transmitting 911 service and related emergency information fail in the aftermath of disaster events. For example, the Commission's DIRS data show that the majority of cell site outages in the immediate aftermath of Hurricane Ida's central disaster region were due to a lack of commercial power availability.[60] More generally, Commission analysis of DIRS data shows that over 50% of cell site outages that occurred during major 2020 earthquakes, hurricanes, and storms were due to power failures. The Commission's NORS outage data similarly reveal that the number of outages caused by power failures has been steadily increasing for the past several years and that power failures are currently driving a nationwide trend in the increase of outages. The Commission received 9,158 outage reports in 2020 alone for communications disruptions caused by power failures, potentially affecting 63,097,389 customers.[61] Of those customers, 4.3 million potentially experienced service disruptions on a single day.

35. Without power to support providers' network operations in the aftermath of disasters, the public is unable to place potentially life-saving 911 calls, local emergency management officials are unable to transmit EAS and WEA messages, evacuation orders, and other public safety-related

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[57] *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications*, PS Docket No. 15-80, Second Report and Order, 36 FCC Rcd 6136 (2021).

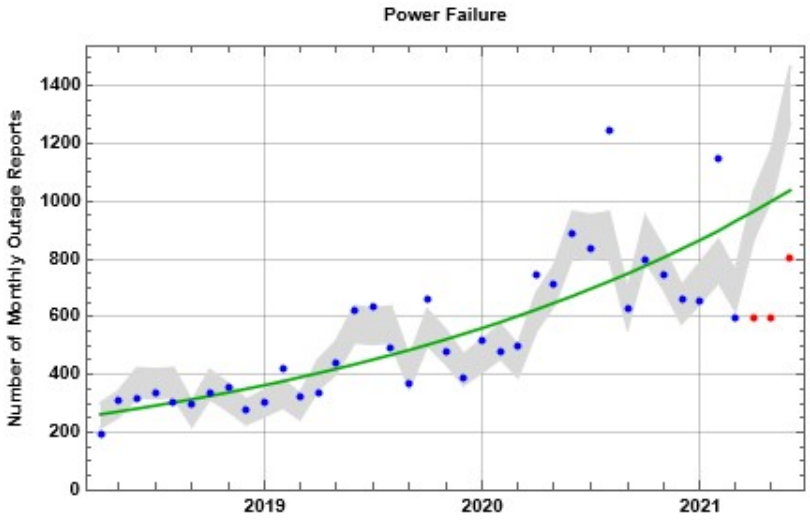
[58] *See* Kevin McGill, Chevel Johnson, and Melinda Deslatte, *Ida's sweltering aftermath: No power, no water, no gasoline* (Sept. 1, 2020), https://apnews.com/article/hurricane-ida-louisiana-new-orleans-mississippi-f6d6750d736af169ae09fa3142f92a4e.

[59] Data compiled by the Commission shows that approximately half of all cellular sites in New Orleans and the surrounding disaster area remained out of service nearly two days after the worst effects of Idea had passed, with no clear timetable for the restoration of these networks. *See* Communications Status Report for Areas Impacted by Hurricane Ida at 2 (August 31, 2021), https://docs.fcc.gov/public/attachments/DOC-375367A1.pdf.

[60] *See* Communications Status Report for Areas Impacted by Hurricane Ida at 5-6 (August 31, 2021), https://docs.fcc.gov/public/attachments/DOC-375367A1.pdf (observing that 699 cell sites were out due to power, approximately doubling the 354 cell sites out due to damage and transport causes combined).

[61] This total of potentially affected customers represents the sum total customers that may have been affected across all 9,158 outages. If a customer was potentially affected by multiple outages in 2020, they will be counted multiple times in the sum total.

information, and first responders are unable to coordinate effectively to save lives and property.[62] Hurricane Ida thus continues an unfortunate (though potentially addressable) trend, demonstrating that the nation's communications infrastructure remains highly prone to failure due to disruptions to commercial power in the face of disasters. This reinforces observations that we have made during recent hurricane and wildfire seasons, earthquakes in Puerto Rico, and this year's severe winter storms in Texas. If the current trend continues without corrective action, the frequency of outages will worsen in coming years as the nation experiences disaster events of increasing severity, duration, and impact, including hurricanes, flooding, and wildfires.



NORS Data Trend in Outages Caused by Power Failure, April 2018 to June 2021[63]

36. In view of this context, we now seek to explore communications resilience strategies for power outages. As part of this review, we seek to identify actions the Commission, communications providers, and power companies can cooperatively take to encourage and increase coordination in the power and communications sectors before, during, and after an emergency or disaster. We also seek to better understand how changing circumstances since the Commission's last broad consideration of backup power (including trends showing increasingly severe storms, wildfires, and other disasters, and advances in power technology) may bear on whether and how backup power or alternative measures may help

[62] *See*, *e.g.*, Drew FitzGerald, *Hurricane Idea's Power Outages Hamper Efforts to Restore Cellphone Service* (August 31, 2021), https://www.wsj.com/articles/hurricane-idas-power-outages-hamper-efforts-to-restore-cellphone-service-11630449774. Conversely, with backup power in place, providers are able to bring their networks online and, if necessary, immediately begin diagnosing and addressing damage that their networks may have sustained.

[63] This figure depicts the number of monthly final outage reports in NORS with power failure as a reported cause over time. The red dots represent the numbers of outage reports in 2Q21 months and blue dots represent months prior to 2Q21. The green line shows the expected number of outages in each month without taking seasonality effects into account; as such, it represents the general overall trend in the three-year window immediately preceding 2Q21 (April 2018 through March 2021). The shaded gray area indicates a 99% confidence interval for each month. This confidence interval is defined by the expected number of outages in each month based on the trend and seasonality effects. These data do not include outages caused by power failures that were reported in DIRS. They also do not include outages that are not service affecting (e.g., outages of transport facilities with diverse routes) or special facility outages (outages of single circuits with Telecommunications Service Priority Level 1 or 2).

promote continuity of power, including for PSAPs and emergency services. We seek comment on this issue.

37. As an initial matter, we seek comment on communications service provider coordination with power companies before, during, and after disasters, including efforts of the Cross-Sector Resiliency Forum.[64] Are existing coordination efforts effective at minimizing communications service outages that are caused by power outages? Are there coordination activities that communications service provider and power companies could potentially take that have not yet been formalized or operationalized? If so, what steps could the Commission take to encourage this coordination? For example, should the Commission convene stakeholders from the electric industry, telecommunications sector, and public safety agencies to take part in regional coordination events to encourage greater cross-sector coordination in preparing for and in response to disasters? Should the Commission coordinate with gubernatorial offices and state emergency management agencies to encourage integrating communications providers and power companies into response planning, execution, and exercises?

38. Next, we seek comment on how backup power or alternative measures may help promote the continuity of service during or after disasters. We seek comment on the current state of providers' backup power implementations. For example, how many hours of backup power do providers typically maintain, what technologies do they use to meet their requirements, and how readily deployable are those technologies when needed? Does the amount or type of backup power solution differ depending upon the facility or type of infrastructure? What are the benefits and challenges of maintaining backup power on-site? If not maintained on-site, how could providers ensure that they can move backup power resources on-site with minimal delay when disaster strikes? What steps do providers take to adequately mitigate the risk that a disaster event that disrupts primary power would also knock out any on-site backup power resources (e.g., fuel generators)? What types of backup power solutions are available for the various elements of infrastructure that may require it?

39. We seek comment on what steps service providers would need to take with respect to backup power deployment to significantly reduce the number of communications disruptions caused by power outages. How many hours of on-site backup power would be appropriate at their facilities to significantly reduce the frequency of power-related service disruptions? Are there events or geographic areas in which more hours of backup power are needed than others? To maximize the effectiveness of backup power solutions, should backup power be provisioned at certain critical points in communications infrastructure, and if so, at which points? In general, how should the Commission define or otherwise identify facilities and equipment that are critical to ensuring that emergency communications can be transmitted in the aftermath of a disaster? Are there differences across different types of communications networks or geographies where they are located that are relevant to deployment of backup power solutions or performance during power outages more generally?[65] Is the deployment of on-site backup power sufficient to keep networks online in view of other potentially independent factors that may cause a network to fail during a disaster, e.g., lack of hardened and resilient network equipment? If it is not sufficient, what other steps should service providers take to avoid service disruptions? What are the associated costs and benefits?

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[64] *See, e.g.*, Letter from Matthew Gerst, CTIA; Steve Morris, NCTA – The Internet & Television Association; Aryeh Fishman, Edison Electric Institute; Patrick Halley, USTelecom – The Broadband Association, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 11-60 (filed June 7, 2021) (describing the mission of the Cross-Sector Resiliency Forum as "advancing resiliency through improving information sharing, identifying lessons learned from previous disaster and emergency events, and enhancing coordination between the communications and electric industries before, during, and in the immediate aftermath of such events.")

[65] *See*, *e.g.*, Letter from Steven F. Morris, NCTA - The Internet & Television Association, USTelecom, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-80 et al., at 3 (Sept. 23, 2021).

40. As we explore the potential for wider backup power implementation, we seek comment on service providers' experiences with any state-specific backup power requirements as well as the potential cost of implementation.

41. We also seek comment on any alternatives to on-site backup power that have also proven successful or have the potential to reduce the frequency, duration, or severity of disruptions to communications services caused by power outages. Are there other technical solutions for preventing service disruptions caused by power outages or other efforts to reduce the number of service disruptions that we have not raised here?

42. We also seek comment on the Commission's existing requirements for covered 911 service providers to implement reasonable central-office backup power measures to ensure 911 reliability.[66] The Commission adopted these and other requirements for covered 911 service providers to promote 911 network resiliency.[67] As noted above, Louisiana had three PSAPs offline due to damaged power and communications infrastructure in the aftermath of Hurricane Ida. Other PSAPs were also impacted as generators began to fail. Are there steps the Commission can take, such as revisions to our resiliency rules[68] or encouraging of voluntary measures, to make it more likely that PSAPs will have the necessary resources to continue service during and after disasters? Are there other considerations pertaining to 911 outages and access to emergency services in the wake of a disaster?

43. *Digital Equity and Inclusion.* Finally, the Commission, as part of its continuing effort to advance digital equity for all,[69] including people of color, persons with disabilities, persons who live in rural or Tribal areas, and others who are or have been historically underserved, marginalized, or adversely affected by persistent poverty or inequality, invites comment on any equity-related considerations[70] and benefits (if any) that may be associated with the proposals and issues discussed herein. Specifically, we seek comment on how our proposals may promote or inhibit advances in diversity, equity, inclusion, and accessibility, as well the scope of the Commission's relevant legal authority.

IV. PROCEDURAL MATTERS

44. *Paperwork Reduction Act.* This document contains proposed new and modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the OMB to comment on the information collection

[66] 47 CFR § 9.19(b); *see also supra* para. 7.

[67] *See* 47 CFR § 9.19; s*ee also Improving 911 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 13-75, 11-60, Report and Order, 28 FCC Rcd 17476, (2013) (adopting 911 certification rules); *Improving 911 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies,* PS Docket Nos. 13-75, 11-60, Order on Reconsideration, 30 FCC Rcd 8650 (2015) (clarifying that covered 911 service providers may implement and certify an alternative measures for any of the specific elements, as long as they "provide an explanation of how such alternative measures are reasonably sufficient to mitigate the risk of failure").

[68] *See*, *e.g.*, 47 CFR pts. 4, 9.

[69] Section 1 of the Communications Act of 1934 as amended provides that the FCC "regulat[es] interstate and foreign commerce in communication by wire and radio so as to make [such service] available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex." 47 U.S.C. § 151.

[70] The term "equity" is used here consistent with Executive Order 13985 as the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. *See* Exec. Order No. 13985, 86 Fed. Reg. 7009, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (January 20, 2021).

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.

45. *Ex Parte Rules— Permit-But-Disclose.* This proceeding shall be treated as "permit-but-disclose" proceedings in accordance with the Commission's ex parte rules.[71] 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.

46. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),[72] requires that a regulatory flexibility analysis be prepared for notice and comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."[73] Accordingly, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) concerning potential rule and policy changes contained in this Notice of Proposed Rulemaking. The IRFA is set forth in the Appendix.

47. *Filing of Comments and Reply Comments.* Interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. 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/.
- Paper Filers: Parties that choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.
- 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.
    - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority

[71] *See* 47 CFR §§ 1.1200—1.1216.

[72] 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601–612, was amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[73] *Id*. § 605(b).

Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701

- Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street, NE, Washington DC 20554

- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19.
- During the time the Commission's building is closed to the general public and until further notice, if more than one docket or rulemaking number appears in the caption of a proceeding, paper filers need not submit two additional copies for each additional docket or rulemaking number; an original and one copy are sufficient.

48. *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.

49. *Further Information.* For further information regarding the Notice of Proposed Rulemaking, contact Saswat Misra, Attorney Advisor, Public Safety and Homeland Security Bureau at Saswat.Misra@fcc.gov or (202) 418-0944.

V. ORDERING CLAUSES

50. ACCORDINGLY IT IS ORDERED that, pursuant to the authority contained in sections 1, 4(i)-(j), 4(n)-(o), 201, 202, 214, 218, 251(e)(3), 254, 301, 303(b), 303(g), 303(r), 307, 309(a), 309(j), 316, 332 and 403, of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j), 154(n)-(o), 201, 202, 214, 218, 251(e)(3), 254, 301, 303(b), 303(g), 303(r), 307, 309(a), 309)(j), 316, 332, 403; sections 2, 3(b), and 6-7 of the Wireless Communications and Public Safety Act of 1999, 47 U.S.C. §§ 615 note, 615, 615a-1, 615b, section 106 of the Twenty First Century Communications and Video Accessibility Act of 2010, 47 U.S.C. § 615c, and section 506(a) of the Repack Airways Yielding Better Access for Users of Modern Services Act of 2018 (RAY BAUM's Act) this Notice of Proposed Rulemaking is ADOPTED and is EFFECTIVE upon publication in the *Federal Register*.

51. 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 Association.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX

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 policies and rules proposed in the Notice of Proposed Rule Making (*Notice*) in this proceeding. 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 as specified in the *Notice*. The Commission will send a copy of the *Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[3]

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

2. The *Notice* proposes steps to safeguard and improve transmission of life-saving 911, Emergency Alert System (EAS), Wireless Emergency Alert (WEA) messages and other life-saving information during emergencies by improving the reliability, resiliency, and continuity of associated communications networks. More specifically, the *Notice*:

- Considers whether elements of the Wireless Network Resiliency Cooperative Framework (Framework) – a voluntary agreement developed by the wireless industry in 2016 to provide mutual aid in the event of a disaster – could be improved to enhance the reliability of communication networks,[4] including by inquiring into whether the public would benefit from codifying some or all of the Framework into the Commission's rules.
- Seeks comment on how the Commission can better promote situational awareness during disasters through its Disaster Information Reporting System (DIRS) and Network Outage Reporting System (NORS).[5]
- Explores communications resilience strategies to address one of the primary reasons for service disruptions: electric power outages, including through an exploration of backup power implementations.

3. These proposals are made against the backdrop of Hurricane Ida, which hit the United States as a Category 4 hurricane in August 2021 and caused significant flooding and damage in several states along the southern and northeastern corridors of the United States. Hurricane Ida, as well as recent hurricane and wildfire seasons, earthquakes in Puerto Rico, and severe winter storms in Texas demonstrate that America's communications infrastructure remains susceptible to disruption during disasters. These disruptions can prevent the transmission of 911 calls, first responder communications, EAS and WEA messages, and other potentially life-saving information. They also can have cascading detrimental effects on the economy and other critical infrastructures due to interdependencies among sectors, including the transportation, medical, and financial sectors, among others. Importantly, these

[1] 5 U.S.C. § 603. The RFA, 5 U.S.C. § 601 - 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[2] 5 U.S.C. § 603(a).

[3] *See id*.

[4] Federal Communications Commission, *Wireless Resiliency Cooperative Framework*, https://www.fcc.gov/wireless-resiliency-cooperative-framework (last visited Sep. 1, 2021). *See also Improving the Resiliency of Mobile Wireless Communications Networks; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 11-60 and 13-239, Order, 31 FCC Rcd 13745 (2016) (*Framework Order*).

[5] Henceforth, the term "nation's service providers" will refer collectively to this group of entities.

disruptions may involve any or all communications networks – including wireline, wireless, cable, satellite, or broadcast facilities.

B. Legal Basis

4. The proposed action is authorized pursuant to sections 1, 4(i)-(j), 4(n)-(o), 201, 202, 214, 218, 251(e)(3), 254, 301, 303(b), 303(g), 303(r), 307, 309(a), 309(j), 316, 332 and 403, of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j), 154(n)-(o), 201, 202, 214, 218, 251(e)(3), 254, 301, 303(b), 303(g), 303(r), 307, 309(a), 309)(j), 316, 332, 403; sections 2, 3(b), and 6-7 of the Wireless Communications and Public Safety Act of 1999, 47 U.S.C. §§ 615 note, 615, 615a-1, 615b, section 106 of the Twenty First Century Communications and Video Accessibility Act of 2010, 47 U.S.C. § 615c, and section 506(a) of the Repack Airways Yielding Better Access for Users of Modern Services Act of 2018 (RAY BAUM's Act).

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

5. The RFA directs agencies to provide a description of and, where feasible, and estimate of the number of small entities that may be affected by the proposed rules, if adopted.[6] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[7] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[8] A small business concern is one that: (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).[9] ln addition to the descriptions below, included in this section are establishments providing broadband only services that are not otherwise enumerated elsewhere in this IRFA.

1. Total Small Entities

6. *Small Businesses, Small Organizations, Small Governmental Jurisdictions*. Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein.[10] First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the SBA's Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.[11] These types of small businesses represent 99.9% of all businesses in the United States which translates to 30.7 million businesses.[12]

7. Next, the type of small entity described as a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[13] The Internal Revenue Service (IRS) uses a revenue benchmark of $50,000 or less to delineate its annual

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[6] 5 U.S.C. § 603(b)(3).

[7] 5 U.S.C. § 601(6).

[8] 5 U.S.C. § 601(3) (incorporating by reference the definition of ""small business concern" in 15 U.S.C. § 632(a)). Pursuant to the RFA, 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."

[9] 15 U.S.C. § 632.

[10] *See* 5 U.S.C. § 601(3)-(6).

[11] *See* SBA, Office of Advocacy, "What's New With Small Business?", https://cdn.advocacy.sba.gov/wp-content/uploads/2019/09/23172859/Whats-New-With-Small-Business-2019.pdf (Sept 2019).

[12] *Id*.

[13] 5 U.S.C. § 601(4).

electronic filing requirements for small exempt organizations.[14] Nationwide, for tax year 2018, there were approximately 571,709 small exempt organizations in the U.S. reporting revenues of $50,000 or less according to the registration and tax data for exempt organizations available from the IRS.[15]

8. Finally, the small entity described as a "small governmental jurisdiction" is defined generally as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[16] U.S. Census Bureau data from the 2017 Census of Governments[17] indicate that there were 90,075 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.[18] Of this number there were 36,931 general purpose governments (county[19], municipal and town or township[20]) with populations of less than 50,000 and 12,040 special purpose governments - independent school districts[21] with enrollment

[14] The IRS benchmark is similar to the population of less than 50,000 benchmark in 5 U.S.C § 601(5) that is used to define a small governmental jurisdiction. Therefore, the IRS benchmark has been used to estimate the number small organizations in this small entity description. S*ee* Annual Electronic Filing Requirement for Small Exempt Organizations — Form 990-N (e-Postcard), "Who must file," https://www.irs.gov/charities-non-profits/annual-electronic-filing-requirement-for-small-exempt-organizations-form-990-n-e-postcard. We note that the IRS data does not provide information on whether a small exempt organization is independently owned and operated or dominant in its field.

[15] *See* Exempt Organizations Business Master File Extract (EO BMF), "CSV Files by Region," https://www.irs.gov/charities-non-profits/exempt-organizations-business-master-file-extract-eo-bmf. The IRS Exempt Organization Business Master File (EO BMF) Extract provides information on all registered tax-exempt/non-profit organizations. The data utilized for purposes of this description was extracted from the IRS EO BMF data for Region 1-Northeast Area (76,886), Region 2-Mid-Atlantic and Great Lakes Areas (221,121), and Region 3-Gulf Coast and Pacific Coast Areas (273,702) which includes the continental U.S., Alaska, and Hawaii. This data does not include information for Puerto Rico.

[16] 5 U.S.C. § 601(5).

[17] *See* 13 U.S.C. § 161. The Census of Governments survey is conducted every five (5) years compiling data for years ending with "2" and "7". *See also* Census of Governments, https://www.census.gov/programs-surveys/cog/about html.

[18] *See* U.S. Census Bureau, 2017 Census of Governments – Organization Table 2. Local Governments by Type and State: 2017 [CG1700ORG02]. https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html. Local governmental jurisdictions are made up of general purpose governments (county, municipal and town or township) and special purpose governments (special districts and independent school districts). *See also* Table 2. CG1700ORG02 Table Notes_Local Governments by Type and State_2017.

[19] *See* U.S. Census Bureau, 2017 Census of Governments - Organization, Table 5. County Governments by Population-Size Group and State: 2017 [CG1700ORG05]. https://www.census.gov/data/tables/2017/econ/gus/2017-governments html. There were 2,105 county governments with populations less than 50,000. This category does not include subcounty (municipal and township) governments.

[20] *See* U.S. Census Bureau, 2017 Census of Governments - Organization, Table 6. Subcounty General-Purpose Governments by Population-Size Group and State: 2017 [CG1700ORG06]. https://www.census.gov/data/tables/2017/econ/gus/2017-governments html. There were 18,729 municipal and 16,097 town and township governments with populations less than 50,000.

[21] *See* U.S. Census Bureau, 2017 Census of Governments - Organization, Table 10. Elementary and Secondary School Systems by Enrollment-Size Group and State: 2017 [CG1700ORG10]. https://www.census.gov/data/tables/2017/econ/gus/2017-governments html. There were 12,040 independent school districts with enrollment populations less than 50,000. *See also* Table 4. Special-Purpose Local Governments by State Census Years 1942 to 2017 [CG1700ORG04], CG1700ORG04 Table Notes_Special Purpose Local Governments by State_Census Years 1942 to 2017.

populations of less than 50,000.[22] Accordingly, based on the 2017 U.S. Census of Governments data, we estimate that at least 48,971 entities fall into the category of "small governmental jurisdictions."[23]

2. Interconnected VoIP services

9. *Internet Service Providers (Non-Broadband).* Internet access service providers such as Dial-up Internet service providers, VoIP service providers using client-supplied telecommunications connections and Internet service providers using client-supplied telecommunications connections (e.g., dial-up ISPs) fall in the category of All Other Telecommunications.[24] The SBA has developed a small business size standard for All Other Telecommunications which consists of all such firms with gross annual receipts of $35 million or less.[25] For this category, U.S. Census Bureau data for 2012 show that there were 1,442 firms that operated for the entire year.[26] Of these firms, a total of 1,400 had gross annual receipts of less than $25 million.[27] Consequently, under this size standard a majority of firms in this industry can be considered small.

10. *Internet Service Providers (Broadband).* Broadband Internet service providers include wired (e.g., cable, DSL) and VoIP service providers using their own operated wired telecommunications infrastructure fall in the category of Wired Telecommunication Carriers.[28] Wired Telecommunications Carriers are comprised of establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies.[29] The SBA size standard for this category classifies a business as small if it has 1,500 or fewer employees.[30] U.S. Census Bureau data for 2012 show that there were 3,117 firms that operated that year.[31] Of this total, 3,083 operated with fewer than 1,000

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[22] While the special purpose governments category also includes local special district governments, the 2017 Census of Governments data does not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts is included in the special purpose governments category.

[23] This total is derived from the sum of the number of general purpose governments (county, municipal and town or township) with populations of less than 50,000 (36,931) and the number of special purpose governments - independent school districts with enrollment populations of less than 50,000 (12,040), from the 2017 Census of Governments - Organizations Tables 5, 6, and 10.

[24] *See* U.S. Census Bureau, *2017 NAICS Definition, "517919 All Other Telecommunications,"* https://www.census.gov/naics/?input=517919&year=2017&details=517919.

[25] *See* 13 CFR § 121.201, NAICS Code 517919.

[26] *See* U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ4, *Information: Subject Series - Estab and Firm Size: Receipts Size of Firms for the U.S.: 2012*, NAICS Code 517919, https://data.census.gov/cedsci/table?text=EC1251SSSZ4&n=517919&tid=ECNSIZE2012.EC1251SSSZ4&hidePreview=false.

[27] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[28] *See* U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers"*, https://www.census.gov/naics/?input=517311&year=2017&details=517311.

[29] *Id.*

[30] *See* 13 CFR § 121.201, NAICS Code 517311 (previously 517110).

[31] *See* U.S. Census Bureau, *2012 Economic Census of the United States,* Table ID: EC1251SSSZ5, *Information: Subject Series - Estab & Firm Size: Employment Size of Firms for the U.S.: 2012*, NAICS Code 517110, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517110&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false.

employees.[32] Consequently, under this size standard the majority of firms in this industry can be considered small.

3. Wireline Providers

11. *Incumbent Local Exchange Carriers* (*Incumbent LECs*). Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent local exchange services. The closest applicable NAICS Code category is Wired Telecommunications Carriers.[33] Under the applicable SBA size standard, such a business is small if it has 1,500 or fewer employees.[34] U.S. Census Bureau data for 2012 indicate that 3,117 firms operated the entire year.[35] Of this total, 3,083 operated with fewer than 1,000 employees.[36] Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our actions. According to Commission data, one thousand three hundred and seven (1,307) Incumbent Local Exchange Carriers reported that they were incumbent local exchange service providers.[37] Of this total, an estimated 1,006 have 1,500 or fewer employees.[38] Thus, using the SBA's size standard the majority of incumbent LECs can be considered small entities.

12. *Interexchange Carriers*. Neither the Commission nor the SBA has developed a small business size standard specifically for Interexchange Carriers. The closest applicable NAICS Code category is Wired Telecommunications Carriers.[39] The applicable size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees.[40] U.S. Census Bureau data for 2012 indicate that 3,117 firms operated for the entire year.[41] Of that number, 3,083 operated with fewer than 1,000 employees.[42] According to internally developed Commission data, 359 companies reported that their

[32] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[33] *See* U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* https://www.census.gov/naics/?input=517311&year=2017&details=517311.

[34] *See* 13 CFR § 121.201, NAICS Code 517311 (previously 517110).

[35] *See* U.S. Census Bureau, *2012 Economic Census of the United States,* Table ID: EC1251SSSZ5, *Information: Subject Series - Estab & Firm Size: Employment Size of Firms for the U.S.: 2012,* NAICS Code 517110, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517110&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false.

[36] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[37] *See Trends in Telephone Service*, Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division at Table 5.3 (Sept. 2010) (*Trends in Telephone Service*).

[38] *Id*.

[39] *See* U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* https://www.census.gov/naics/?input=517311&year=2017&details=517311.

[40] *See* 13 CFR § 121.201, NAICS Code 517311 (previously 517110).

[41] *See* U.S. Census Bureau, *2012 Economic Census of the United States,* Table ID: EC1251SSSZ5, *Information: Subject Series - Estab & Firm Size: Employment Size of Firms for the U.S.: 2012,* NAICS Code 517110, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517110&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false.

[42] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

primary telecommunications service activity was the provision of interexchange services.[43] Of this total, an estimated 317 have 1,500 or fewer employees.[44] Consequently, the Commission estimates that the majority of interexchange service providers are small entities.

13. *Operator Service Providers* (*OSPs*). Neither the Commission nor the SBA has developed a small business size standard specifically for operator service providers. The closest applicable size standard under SBA rules is for the category Wired Telecommunications Carriers.[45] Under that size standard, such a business is small if it has 1,500 or fewer employees.[46] U.S. Census Bureau data for 2012 show that there were 3,117 firms that operated that year.[47] Of this total, 3,083 operated with fewer than 1,000 employees.[48] Thus under this size standard, the Commission estimates that the majority of firms in this industry are small entities. According to Commission data, 33 carriers have reported that they are engaged in the provision of operator services.[49] Of these, an estimated 31 have 1,500 or fewer employees and 2 have more than 1,500 employees.[50] Consequently, the Commission estimates that the majority of operator service providers are small entities that may be affected by our proposed action.

4. Wireless Providers – Fixed and Mobile

14. To the extent the wireless services listed below are used by wireless firms for fixed and mobile broadband Internet access services, the *Notice's* proposed rules may have an impact on those small businesses as set forth above and further below. Accordingly, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that claim to qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments and transfers or reportable eligibility events, unjust enrichment issues are implicated.

15. *Wireless Telecommunications Carriers (except Satellite)*. This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless internet access, and wireless video services.[51] The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees.[52] For this industry, U.S. Census Bureau data for 2012 show that there

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[43] *See Trends in Telephone Service*, Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division at Table 5.3 (Sept. 2010) (*Trends in Telephone Service*). https://apps.fcc.gov/edocs_public/attachmatch/DOC-301823A1.pdf.

[44] *Id*.

[45] *See* U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* https://www.census.gov/naics/?input=517311&year=2017&details=517311.

[46] *See* 13 CFR § 121.201, NAICS Code 517311 (previously 517110).

[47] *See* U.S. Census Bureau, *2012 Economic Census of the United States,* Table ID: EC1251SSSZ5, *Information: Subject Series - Estab & Firm Size: Employment Size of Firms for the U.S.: 2012,* NAICS Code 517110, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517110&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false.

[48] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[49] *See* Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, Trends in Telephone Service at Table 5.3 (Sept. 2010) (*Trends in Telephone Service*).

[50] *Id.*

[51] *See* U.S. Census Bureau, *2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (except Satellite),"* https://www.census.gov/naics/?input=517312&year=2017&details=517312.

[52] *See* 13 CFR § 121.201, NAICS Code 517312 (previously 517210).

were 967 firms that operated for the entire year.[53] Of this total, 955 firms employed fewer than 1,000 employees and 12 firms employed of 1000 employees or more.[54] Thus under this category and the associated size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities.

16. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined "small business" for the wireless communications services (WCS) auction as an entity with average gross revenues of $40 million for each of the three preceding years, and a "very small business" as an entity with average gross revenues of $15 million for each of the three preceding years.[55] The SBA has approved these small business size standards.[56] In the Commission's auction for geographic area licenses in the WCS there were seven winning bidders that qualified as "very small business" entities, and one winning bidder that qualified as a "small business" entity.

17. *1670–1675 MHz Services*. This service can be used for fixed and mobile uses, except aeronautical mobile.[57] An auction for one license in the 1670–1675 MHz band was conducted in 2003. One license was awarded. The winning bidder was not a small entity.

18. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite).[58] Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees.[59] For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year.[60] Of this total, 955 firms had fewer than 1,000 employees and 12 firms had 1000 employees or more.[61] Thus under this category and the associated size standard, the Commission estimates that a majority of these entities can be considered small. According to Commission data, 413 carriers reported that they were engaged in wireless

[53] *See* U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ5, *Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012*, NAICS Code 517210, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517210&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false&vintage=2012.

[54] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[55] *Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service (WCS)*, Report and Order, 12 FCC Rcd 10785, 10879, para. 194 (1997).

[56] Letter from Aida Alvarez, Administrator, SBA, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC (filed Dec. 2, 1998) (*Alvarez Letter 1998*).

[57] 47 CFR § 2.106; *see generally* 47 CFR §§ 27.1–.70.

[58] *See* U.S. Census Bureau, *2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (except Satellite),*" https://www.census.gov/naics/?input=517312&year=2017&details=517312.

[59] *See* 13 CFR § 121.201, NAICS Code 517312 (previously 517210).

[60] *See* U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ5, *Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012*, NAICS Code 517210, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517210&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false&vintage=2012.

[61] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

telephony.[62] Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees.[63] Therefore, more than half of these entities therefore can be considered small.

19. *Broadband Personal Communications Service.* The broadband personal communications services (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a "small business" for C- and F-Block licenses as an entity that has average gross revenues of $40 million or less in the three previous calendar years.[64] For F-Block licenses, an additional small business size standard for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[65] These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA.[66] No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small business status won approximately 40 percent of the 1,479 licenses in the first auction for the D, E, and F Blocks.[67] On April 15, 1999, the Commission completed the re-auction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22.[68] Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

20. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status.[69] Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses.[70] On May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71.[71] Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses.[72] On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block

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[62] *See* Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, Trends in Telephone Service at Table 5.3 (Sept. 2010) (*Trends in Telephone Service*), https://apps.fcc.gov/edocs_public/attachmatch/DOC-301823A1.pdf.

[63] *Id*.

[64] *Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap et al., Report and Order*, 11 FCC Rcd 7824, 7850–52, paras. 57–60 (1996) (PCS Report and Order); see also 47 CFR § 24.720(b).

[65] *PCS Report and Order*, 11 FCC Rcd at 7852, para. 60.

[66] *See Alvarez Letter 1998*.

[67] *See Broadband PCS, D, E and F Block Auction Closes*, Public Notice, Doc. No. 89838 (rel. Jan. 14, 1997).

[68] *See C, D, E, and F Block Broadband PCS Auction Closes*, Public Notice, 14 FCC Rcd 6688 (WTB 1999). Before Auction No. 22, the Commission established a very small standard for the C Block to match the standard used for F Block. *Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensees*, WT Docket No. 97-82, Fourth Report and Order, 13 FCC Rcd 15743, 15768, para. 46 (1998).

[69] *C and F Block Broadband PCS Auction Closes; Winning Bidders Announced*, Public Notice, 16 FCC Rcd 2339 (2001).

[70] *Broadband PCS Spectrum Auction Closes; Winning Bidders Announced for Auction No. 58*, Public Notice, 20 FCC Rcd 3703 (2005).

[71] *Auction of Broadband PCS Spectrum Licenses Closes; Winning Bidders Announced for Auction No. 71*, Public Notice, 22 FCC Rcd 9247 (2007).

[72] *Id*.

Broadband PCS licenses in Auction No. 78.[73] Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.[74]

21. *Specialized Mobile Radio Licenses.* The Commission awards "small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years.[75] The Commission awards "very small entity" bidding credits to firms that had revenues of no more than $3 million in each of the three previous calendar years.[76] The SBA has approved these small business size standards for the 900 MHz Service.[77] The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR auction began on December 5, 1995, and closed on April 15, 1996. Sixty bidders claiming that they qualified as small businesses under the $15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels began on October 28, 1997, and was completed on December 8, 1997. Ten bidders claiming that they qualified as small businesses under the $15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz SMR band.[78] A second auction for the 800 MHz band was held on January 10, 2002 and closed on January 17, 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.[79]

22. The auction of the 1,053 800 MHz SMR geographic area licenses for the General Category channels began on August 16, 2000, and was completed on September 1, 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band and qualified as small businesses under the $15 million size standard.[80] In an auction completed on December 5, 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded.[81] Of the 22 winning bidders, 19 claimed small business status and won 129 licenses. Thus, combining all four auctions, 41 winning bidders for geographic licenses in the 800 MHz SMR band claimed status as small businesses.

23. In addition, there are numerous incumbent site-by-site SMR licenses and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these service providers have annual revenues of no more than $15 million. In addition, we do not know how many of these firms have 1,500 or fewer employees, which is the SBA-determined size standard.[82] We assume, for purposes of this analysis, that all of the remaining extended implementation authorizations are held by small entities, as defined by the SBA.

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[73] *Auction of AWS-1 and Broadband PCS Licenses Closes; Winning Bidders Announced for Auction 78*, Public Notice, 23 FCC Rcd 12749 (WTB 2008).

[74] *Id.*

[75] 47 CFR § 90.814(b)(1).

[76] *Id.*

[77] Letter from Aida Alvarez, Administrator, SBA, to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, FCC (filed Aug. 10, 1999) (*Alvarez Letter 1999*).

[78] *Correction to Public Notice DA 96-586 "FCC Announces Winning Bidders in the Auction of 1020 Licenses to Provide 900 MHz SMR in Major Trading Areas,"* Public Notice, 18 FCC Rcd 18367 (WTB 1996).

[79] *Multi-Radio Service Auction Closes*, Public Notice, 17 FCC Rcd 1446 (WTB 2002).

[80] *800 MHz Specialized Mobile Radio (SMR) Service General Category (851–854 MHz) and Upper Band (861–865 MHz) Auction Closes; Winning Bidders Announced*, Public Notice, 15 FCC Rcd 17162 (2000).

[81] *800 MHz SMR Service Lower 80 Channels Auction Closes; Winning Bidders Announced*, Public Notice, 16 FCC Rcd 1736 (2000).

[82] *See generally* 13 CFR § 121.201, NAICS code 517210.

24. *Lower 700 MHz Band Licenses*. The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits.[83] The Commission defined a "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years.[84] A "very small business" is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years.[85] Additionally, the lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—"entrepreneur"—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years.[86] The SBA approved these small size standards.[87] An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won a total of 329 licenses.[88] A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 Cellular Market Area licenses.[89] Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses.[90] On July 26, 2005, the Commission completed an auction of 5 licenses in the Lower 700 MHz band (Auction No. 60). There were three winning bidders for five licenses. All three winning bidders claimed small business status.

25. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*.[91] An auction of 700 MHz licenses commenced January 24, 2008 and closed on March 18, 2008, which included, 176 Economic Area licenses in the A Block, 734 Cellular Market Area licenses in the B Block, and 176 EA licenses in the E Block.[92] Twenty winning bidders, claiming small business status (those with attributable average annual gross revenues that exceed $15 million and do not exceed $40 million for the preceding three years) won 49 licenses. Thirty-three winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed $15 million for the preceding three years) won 325 licenses.

26. *Upper 700 MHz Band Licenses*. In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz licenses.[93] On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block.[94] The auction concluded on March 18, 2008, with 3 winning bidders

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[83] *See Reallocation and Service Rules for the 698–746 MHz Spectrum Band (Television Channels 52–59)*, Report and Order, 17 FCC Rcd 1022 (2002) (*Channels 52–59 Report and Order*).

[84] *Channels 52–59 Report and Order*, 17 FCC Rcd at 1087-88, para. 172.

[85] *See id*.

[86] *See id.*, 17 FCC Rcd at 1088, para. 173.

[87] *Alvarez Letter 1999*.

[88] *Lower 700 MHz Band Auction Closes*, Public Notice, 17 FCC Rcd 17272 (WTB 2002).

[89] *Lower 700 MHz Band Auction Closes*, Public Notice, 18 FCC Rcd 11873 (WTB 2003).

[90] *See id.*

[91] *700 MHz Second Report and Order*, Second Report and Order, 22 FCC Rcd 15289, 15359 n.434 (2007).

[92] *Auction of 700 MHz Band Licenses Closes*, Public Notice, 23 FCC Rcd 4572 (WTB 2008).

[93] *700 MHz Second Report and Order*, 22 FCC Rcd 15289.

[94] *Auction of 700 MHz Band Licenses Closes*, Public Notice, 23 FCC Rcd 4572 (WTB 2008).

claiming very small business status (those with attributable average annual gross revenues that do not exceed $15 million for the preceding three years) and winning five licenses.

27. *700 MHz Guard Band Licensees*. In 2000, in the 700 MHz Guard Band Order, the Commission adopted size standards for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[95] A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years.[96] Additionally, a very small business is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years.[97] SBA approval of these definitions is not required.[98] An auction of 52 Major Economic Area licenses commenced on September 6, 2000, and closed on September 21, 2000.[99] Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.[100]

28. *Air-Ground Radiotelephone Service*. The Commission has previously used the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite).[101] The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees.[102] For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year.[103] Of this total, 955 firms had fewer than 1,000 employees and 12 had employment of 1000 employees or more.[104] There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and under that definition, we estimate that almost all of them qualify as small entities under the SBA definition.

29. For purposes of assigning Air-Ground Radiotelephone Service licenses through competitive bidding, the Commission has defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not

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[95] *Service Rules for the 746–764 MHz Bands, and Revisions to Part 27 of the Commission's Rules*, Second Report and Order, 15 FCC Rcd 5299 (2000) (*746–764 MHz Band Second Report and Order*).

[96] *746–764 MHz Band Second Report and Order*, 15 FCC Rcd at 5343, para. 108.

[97] *See id.*

[98] *See id.* at 5343, para. 108 n.246 (for the 746–764 MHz and 776–794 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain SBA approval before adopting small business size standards).

[99] *700 MHz Guard Bands Auction Closes: Winning Bidders Announced*, Public Notice, 15 FCC Rcd 18026 (WTB 2000).

[100] *700 MHz Guard Bands Auction Closes: Winning Bidders Announced*, Public Notice, 16 FCC Rcd 4590 (WTB 2001).

[101] *See* U.S. Census Bureau, *2017 NAICS Definition,* "*517312 Wireless Telecommunications Carriers (except Satellite*)," https://www.census.gov/naics/?input=517312&year=2017&details=517312.

[102] *See* 13 CFR § 121.201, NAICS Code 517312 (previously 517210).

[103] *See* U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ5, *Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012*, NAICS Code 517210. https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517210&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false&vintage=2012.

[104] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

exceeding $40 million.[105] A "very small business" is defined as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $15 million.[106] These definitions were approved by the SBA.[107] In May 2006, the Commission completed an auction of nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band (Auction No. 65). On June 2, 2006, the auction closed with two winning bidders winning two Air-Ground Radiotelephone Services licenses. Neither of the winning bidders claimed small business status.

30. *AWS Services (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3))*. For the AWS-1 bands,[108] the Commission has defined a "small business" as an entity with average annual gross revenues for the preceding three years not exceeding $40 million, and a "very small business" as an entity with average annual gross revenues for the preceding three years not exceeding $15 million.[109] For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but has proposed to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.[110]

31. *3650–3700 MHz band*. In March 2005, the Commission released a *Report and Order and Memorandum Opinion and Order* that provides for nationwide, non-exclusive licensing of terrestrial operations, utilizing contention-based technologies, in the 3650 MHz band (i.e., 3650–3700 MHz).[111] As of April 2010, more than 1270 licenses have been granted and more than 7433 sites have been registered. The Commission has not developed a definition of small entities applicable to 3650–3700 MHz band nationwide, non-exclusive licensees. We estimate however that the majority of these licensees are Internet Access Service Providers (ISPs) and that most of those licensees are small businesses.

32. *Fixed Microwave Services*. Microwave services include common carrier,[112] private-operational fixed,[113] and broadcast auxiliary radio services.[114] They also include the Local Multipoint

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[105] *Amendment of Part 22 of the Commission's Rules to Benefit the Consumers of Air-Ground Telecommunications Services et al.*, Order on Reconsideration and Report and Order, 20 FCC Rcd 19663, paras. 28–42 (2005).

[106] *Id.*

[107] Letter from Hector V. Barreto, Administrator, SBA, to Gary D. Michaels, Deputy Chief, Auctions and Spectrum Access Division, Wireless Telecommunications Bureau, FCC (filed Sept. 19, 2005).

[108] The service is defined in section 90.1301 *et seq*. of the Commission's Rules, 47 CFR § 90.1301 *et seq*.

[109] *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, 18 FCC Rcd 25,162, App. B (2003), *modified by Service Rules for Advanced Wireless Services In the 1.7 GHz and 2.1 GHz Bands*, Order on Reconsideration, 20 FCC Rcd 14,058, App. C (2005).

[110] *Service Rules for Advanced Wireless Services in the 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz Bands et al.*, Notice of Proposed Rulemaking, 19 FCC Rcd 19,263, App. B (2005); *Service Rules for Advanced Wireless Services in the 2155–2175 MHz Band*, Notice of Proposed Rulemaking, 22 FCC Rcd 17,035, App. (2007); *Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band*, Further Notice of Proposed Rulemaking, 23 FCC Rcd 9859, App. B (2008).

[111] The service is defined in section 90.1301 *et seq*. of the Commission's Rules, 47 CFR § 90.1301 *et seq*.

[112] 47 CFR Part 101, Subparts C and I.

[113] 47 CFR Part 101, Subparts C and H.

[114] Auxiliary Microwave Service is governed by Part 74 of Title 47 of the Commission's Rules. *See* 47 CFR Part 74. Available to licensees of broadcast stations and to broadcast and cable network entities, broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between

(continued….)

Distribution Service (LMDS),[115] the Digital Electronic Message Service (DEMS),[116] and the 24 GHz Service,[117] where licensees can choose between common carrier and non-common carrier status.[118] The Commission has not yet defined a small business with respect to microwave services. There are approximately 66,680 common carrier fixed licensees, 69,360 private and public safety operational-fixed licensees, 20,150 broadcast auxiliary radio licensees, 411 LMDS licenses, 33 24 GHz DEMS licenses, 777 39 GHz licenses, and five 24 GHz licenses, and 467 Millimeter Wave licenses in the microwave services.[119] The Commission has not yet defined a small business with respect to microwave services.

33. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite)[120] and the appropriate size standard for this category under SBA rules is that such a business is small if it has 1,500 or fewer employees.[121] For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year.[122] Of this total, 955 firms had employment of 999 or fewer employees and 12 had employment of 1000 employees or more.[123] Thus under this SBA category and the associated size standard, the Commission estimates that a majority of fixed microwave service licensees can be considered small.

34. The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are up to 36,708 common carrier fixed licensees and up to 59,291 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services that may be small and may be affected by the rules and policies discussed herein. We note, however, that the common carrier microwave fixed licensee category does include some large entities.

35. *Local Multipoint Distribution Service.* Local Multipoint Distribution Service (LMDS) is a fixed broadband point-to-multipoint microwave service that provides for two-way video telecommunications.[124] The Commission established a small business size standard for LMDS licenses as an entity that has average gross revenues of less than $40 million in the three previous years.[125] An additional small business size standard for "very small business" was added as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three

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two points such as a main studio and an auxiliary studio. The service also includes mobile TV pickups, which relay signals from a remote location back to the studio.

[115] 47 CFR Part 101, Subpart L.

[116] 47 CFR Part 101, Subpart G.

[117] *See id.*

[118] 47 CFR §§ 101.533, 101.1017.

[119] These statistics are based on a review of the Universal Licensing System on September 22, 2015.

[120] *See* U.S. Census Bureau, *2017 NAICS Definition, "517312 Wireless Telecommunications Carriers* (*except Satellite*)," https://www.census.gov/naics/?input=517312&year=2017&details=517312.

[121] *See* 13 CFR § 121.201, NAICS Code 517312 (previously 517210).

[122] *See* U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ5*, Information: Subject Series, Estab and Firm Size: Employment Size of Firms for the U.S.: 2012,* NAICS Code 517210, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517210&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false&vintage=2012.

[123] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[124] Local Multipoint Distribution Service, *Second Report and Order*, 12 FCC Rcd 12545 (1997).

[125] *See* LMDS Second Report and Order, 12 FCC Rcd at 12689-90, para. 348.

years.[126] The SBA has approved these small business size standards in the context of LMDS auctions.[127] There were 93 winning bidders that qualified as small entities in the LMDS auctions. A total of 93 small and very small businesses won approximately 277 A Block licenses and 387 B Block licenses. In 1999, the Commission re-auctioned 161 licenses and there were 32 small and very small businesses that won 119 licenses.

36. *Broadband Radio Service and Educational Broadband Service.* Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (MDS) and Multichannel Multipoint Distribution Service (MMDS) systems, and "wireless cable," transmit video programming to subscribers and provide two-way high speed data operations using the microwave frequencies of the Broadband Radio Service (BRS) and Educational Broadband Service (EBS) (previously referred to as the Instructional Television Fixed Service (ITFS)).[128]

37. *BRS* - In connection with the 1996 BRS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of no more than $40 million in the previous three calendar years.[129] The BRS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. BRS also includes licensees of stations authorized prior to the auction. At this time, we estimate that of the 61 small business BRS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent BRS licensees that are considered small entities.[130] After adding the number of small business auction licensees to the number of incumbent licensees not already counted, we initially find that there are currently approximately 440 BRS licensees that are defined as small businesses under either the SBA or the Commission's rules. In 2009, the Commission conducted Auction 86, the sale of 78 licenses in the BRS areas.[131] The Commission offered three levels of bidding credits: (i) a bidder with attributed average annual gross revenues that exceed $15 million and do not exceed $40 million for the preceding three years (small business) will receive a 15 percent discount on its winning bid; (ii) a bidder with attributed average annual gross revenues that exceed $3 million and do not exceed $15 million for the preceding three years (very small business) will receive a 25 percent discount on its winning bid; and (iii) a bidder with attributed average annual gross revenues that do not exceed $3 million for the preceding three years (entrepreneur) will receive a 35 percent discount on its winning bid.[132] Auction 86 concluded in 2009 with the sale of 61 licenses.[133] Of the ten winning bidders, two bidders that claimed small

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[126] *See id.*

[127] *See* Letter to D. Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, SBA (Jan. 6, 1998) (Alvarez to Phythyon Letter 1998).

[128] *Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act—Competitive Bidding*, MM Docket No. 94-131, PP Docket No. 93-253, Report and Order, 10 FCC Rcd 9589, 9593, para. 7 (1995).

[129] 47 CFR § 21.961(b)(1).

[130] 47 U.S.C. § 309(j). Hundreds of stations were licensed to incumbent MDS licensees prior to implementation of Section 309(j) of the Communications Act of 1934, 47 U.S.C. § 309(j). For these pre-auction licenses, the applicable standard is SBA's small business size standard of 1500 or fewer employees.

[131] *Auction of Broadband Radio Service (BRS) Licenses, Scheduled for October 27, 2009, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 86*, Public Notice, 24 FCC Rcd 8277 (2009).

[132] *Id.* at 8296.

[133] *Auction of Broadband Radio Service Licenses Closes, Winning Bidders Announced for Auction 86, Down Payments Due November 23, 2009, Final Payments Due December 8, 2009, Ten-Day Petition to Deny Period*, Public Notice, 24 FCC Rcd 13572 (2009).

business status won 4 licenses; one bidder that claimed very small business status won three licenses; and two bidders that claimed entrepreneur status won six licenses.

38. *EBS* - Educational Broadband Service has been included within the broad economic census category and SBA size standard for Wired Telecommunications Carriers since 2007. Wired Telecommunications Carriers are comprised of establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies."[134] The SBA's small business size standard for this category is all such firms having 1,500 or fewer employees.[135] U.S. Census Bureau data for 2012 show that there were 3,117 firms that operated that year.[136] Of this total, 3,083 operated with fewer than 1,000 employees.[137] Thus, under this size standard, the majority of firms in this industry can be considered small.

39. In addition to U.S. Census Bureau data, the Commission's Universal Licensing System indicates that as of March 2019 there are 1,300 licensees holding over 2,190 active EBS licenses. The Commission estimates that of these 2,190 licenses, the majority are held by non-profit educational institutions and school districts, which are by statute defined as small businesses.[138]

5. Satellite Service Providers

40. *Satellite Telecommunications.* This category comprises firms "primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications."[139] Satellite telecommunications service providers include satellite and earth station operators. The category has a small business size standard of $35 million or less in average annual receipts, under SBA rules.[140] For this category, U.S. Census Bureau data for 2012 show that there were a total of 333 firms that operated for the entire year.[141] Of this total, 299 firms had annual receipts of less than $25 million.[142] Consequently, we estimate that the majority of satellite telecommunications providers are small entities.

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[134] *See* U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* https://www.census.gov/naics/?input=517311&year=2017&details=517311.

[135] *See* 13 CFR § 121.201, NAICS Code 517311 (previously 517110).

[136] *See* U.S. Census Bureau, *2012 Economic Census of the United States,* Table ID: EC1251SSSZ5, *Information: Subject Series - Estab & Firm Size: Employment Size of Firms for the U.S.: 2012,* NAICS Code 517110, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517110&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false.

[137] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[138] The term "small entity" within SBREFA applies to small organizations (non-profits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)-(6).

[139] *See* U.S. Census Bureau, *2017 NAICS Definition, "517410 Satellite Telecommunications,"* https://www.census.gov/naics/?input=517410&year=2017&details=517410.

[140] *See* 13 CFR § 121.201, NAICS Code 517410.

[141] *See* U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ4, *Information: Subject Series - Estab and Firm Size: Receipts Size of Firms for the U.S.: 2012*, NAICS Code 517410, https://data.census.gov/cedsci/table?text=EC1251SSSZ4&n=517410&tid=ECNSIZE2012.EC1251SSSZ4&hidePreview=false&vintage=2012.

[142] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

41. *All Other Telecommunications*. The **"**All Other Telecommunications" category is comprised of establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation.[143] This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.[144] Establishments providing Internet services or voice over Internet protocol (VoIP) services via client-supplied telecommunications connections are also included in this industry.[145] The SBA has developed a small business size standard for "All Other Telecommunications", which consists of all such firms with annual receipts of $35 million or less.[146] For this category, U.S. Census Bureau data for 2012 show that there were 1,442 firms that operated for the entire year.[147] Of those firms, a total of 1,400 had annual receipts less than $25 million and 15 firms had annual receipts of $25 million to $49, 999,999.[148] Thus, the Commission estimates that the majority of "All Other Telecommunications" firms potentially affected by our action can be considered small.

6. Cable Service Providers

42. Because Section 706 requires us to monitor the deployment of broadband regardless of technology or transmission media employed, we know that some broadband service providers do not provide voice telephony service. Accordingly, we describe below other types of firms that may provide broadband services, including cable companies, MDS providers, and utilities, among others.

43. *Wired Telecommunications Carriers*. The U.S. Census Bureau defines this industry as "establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry."[149] The SBA has developed a small business size standard for Wired Telecommunications Carriers, which consists of all such companies having 1,500 or fewer employees.[150] U.S. Census Bureau data for 2012 show that there were 3,117 firms

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[143] *See* U.S. Census Bureau, *2017 NAICS Definition*, "*517919 All Other Telecommunications,*" https://www.census.gov/naics/?input=517919&year=2017&details=517919.

[144] *Id.*

[145] *Id*.

[146] *See* 13 CFR § 121.201, NAICS Code 517919.

[147] *See* U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ4, *Information: Subject Series - Estab and Firm Size: Receipts Size of Firms for the U.S.: 2012*, NAICS Code 517919, https://data.census.gov/cedsci/table?text=EC1251SSSZ4&n=517919&tid=ECNSIZE2012.EC1251SSSZ4&hidePreview=false.

[148] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[149] *See* U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* https://www.census.gov/naics/?input=517311&year=2017&details=517311.

[150] *See* 13 CFR § 121.201, NAICS Code 517311 (previously 517110).

that operated that year.[151] Of this total, 3,083 operated with fewer than 1,000 employees.[152] Thus, under this size standard, the majority of firms in this industry can be considered small. Thus, under this size standard, the majority of firms in this industry can be considered small.

44. *Cable Companies and Systems (Rate Regulation)*. The Commission has also developed its own small business size standards, for the purpose of cable rate regulation. Under the Commission's rules, a "small cable company" is one serving 400,000 or fewer subscribers nationwide.[153] Industry data indicate that there are 4,600 active cable systems in the United States.[154] Of this total, all but five cable operators nationwide are small under the 400,000-subscriber size standard.[155] In addition, under the Commission's rate regulation rules, a "small system" is a cable system serving 15,000 or fewer subscribers.[156] Commission records show 4,600 cable systems nationwide.[157] Of this total, 3,900 cable systems have fewer than 15,000 subscribers, and 700 systems have 15,000 or more subscribers, based on the same records.[158] Thus, under this standard as well, we estimate that most cable systems are small entities.

45. *Cable System Operators (Telecom Act Standard)*. The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than one percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000."[159] As of 2019, there were approximately 48,646,056 basic cable video subscribers in the United States.[160] Accordingly, an operator serving fewer than 486,460 subscribers shall be deemed a small operator if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate.[161] Based on available data, we find that all but five cable

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[151] *See* U.S. Census Bureau, *2012 Economic Census of the United States,* Table ID: EC1251SSSZ5, *Information: Subject Series - Estab & Firm Size: Employment Size of Firms for the U.S.: 2012,* NAICS Code 517110, https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517110&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false.

[152] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[153] 47 CFR § 76.901(e). The Commission determined that this size standard equates approximately to a size standard of $100 million or less in annual revenues. *Implementation of Sections of the 1992 Cable Act: Rate Regulation,* Sixth Report and Order and Eleventh Order on Reconsideration, 10 FCC Rcd 7393, 7408 (1995).

[154] The number of active, registered cable systems comes from the Commission's Cable Operations and Licensing System (COALS) database on August 15, 2015. *See* FCC, *Cable Operations and Licensing System (COALS)*, www fcc.gov/coals (last visited Dec. 13, 2019).

[155] S&P Global Market Intelligence, *Top Cable MSOs as of 12/2019, https://platform.marketintelligence.spglobal.com/ (Dec 2019)*. The five cable operators all had more than 400,000 basic cable subscribers.

[156] 47 CFR § 76.901(c).

[157] *See supra note* ***Error! Bookmark not defined.***.

[158] *Id*.

[159] 47 U.S.C. § 543(m)(2); *see* 47 CFR § 76.901(f) & nn.1–3.

[160] S&P Global Market Intelligence, *U.S. Cable Subscriber Highlights, Basic Subscribers(actual) 2019*, *U.S. Cable MSO Industry Total, see also U.S. Multichannel Industry Benchmarks, U.S. Cable Industry Benchmarks, Basic Subscribers 2019Y, https://platform.marketintelligence.spglobal.com*.

[161] 47 CFR § 76.901(e).

operators are small entities under this size standard.[162] We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million.[163] Therefore, we are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators under the definition in the Communications Act.

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

46. We expect the potential rules in the *Notice* will impose new or additional reporting or recordkeeping and/or other compliance obligations on service providers in the following ways:

- *Wireless Resiliency Framework*. Any providers that are required to participate in elements of the Framework who do not already do so, potentially including smaller wireless providers and entities beyond the mobile-wireless industry, such as facilities-based backhaul providers, covered 911 service providers, cable, wireline, broadcast, satellite, or interconnected VoIP providers would potentially need to keep records related to roaming agreements, mutual aid agreements, preparedness and restoration plans, improving consumer readiness and preparation and improving public awareness and stakeholder communications on service and restoration status. These providers would potentially have to submit reports to the Commission detailing implementation of the Framework in real time or in the aftermath of a disaster.
- *NORS and DIRS*. Any providers subject to DIRS reporting and new requirements related to NORS reporting, potentially including cable providers, Direct Broadcast Satellite providers, Satellite Digital Audio Radio Service, TV and radio broadcasters, Commercial Mobile Radio Service and other wireless service providers, wireline providers, VoIP providers, and broadband service providers, would report their communications outage information in NORS when their outages exceed thresholds specified in the Commission's Part 4 rules and infrastructure status information in DIRS when the Commission activates DIRS in geographic areas in which they broadcast or otherwise provide service.
- *Backup Power*. To the extent that the Commission were to adopt backup power requirements, any Public Safety Answering Points (PSAPs) or providers subject to them, potentially including cable providers, Direct Broadcast Satellite providers, Satellite Digital Audio Radio Service, TV and radio broadcasters, Commercial Mobile Radio Service and other wireless service providers, wireline providers, and VoIP providers, could potentially be required to take steps to make their networks more resilient to power outages, as discussed in the Notice.

47. The *Notice* seeks comment on a number of aspects of these proposals, including which providers should be subject to them, the public safety benefits and costs associated with a provider's implementation of the Framework, DIRS and NORS reporting, and backup power resiliency improvements. Given that these elements are currently unknown pending comment, the Commission is presently unable to quantify the costs of compliance with rules associated with these proposals, and whether small entities will need to hire professionals to comply. However, given that each proposal would make more reliable the transmission of 911 calls, first responder communications, EAS and WEA

[162] S&P Global Market Intelligence, *Top Cable MSOs as of 12/2019, https://platform.marketintelligence.spglobal.com*. The five cable operators all had more than 486,460 basic cable subscribers.

[163] The Commission does receive such information on a case-by-case basis if a cable operator appeals a local franchise authority's finding that the operator does not qualify as a small cable operator pursuant to § 76.901(f) of the Commission's rules. *See* 47 CFR § 76.909(b).

messages, and other potentially life-saving information, we tentatively conclude that the benefits exceed the costs of implementing any of these proposals. We seek comment on this tentative conclusion and urge commenters to provide detailed information in support of their comments

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

48. The RFA requires an agency to describe any significant, specifically small business, 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 such 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 such small entities.[164]

49. The Commission is mindful that providers subject to any new rules will incur costs should the proposals we make, and the alternatives upon which we seek comment in the *Notice*, be adopted. To assist in the Commission's evaluation of the economic impact on small entities, the Commission therefore seeks comment on the costs and benefits of various proposals and alternatives in the *Notice*.

50. The Commission has taken specific steps to address some of the costs for providers subject to the potential rules discussed in the *Notice*. As discussed in the *Notice,* to give providers maximum flexibility and reduce potential costs of compliance, the Commission seeks comment on the providers, if any, that should be subject to the proposals. For example, the Commission has sought comment on:

- The scope of providers that should be subject to each of the proposals.
- Whether only some components (rather all components) of the proposals should be mandated and whether non-regulatory options could achieve similar benefits as the potential rules described in the *Notice*.
- Steps the Commission can take, including non-regulatory options, to address encourage providers to supply better situational awareness through NORS and DIRS.
- Whether providers' normal reporting obligations under part 4 of the Commission's Rules[165] should be suspended if they were to be required to report in DIRS when the Commission activates DIRS.
- Actions, including non-regulatory actions, the Commission, communications providers, and power companies can cooperatively take to encourage and increase coordination in the power and communications sectors before, during, and after an emergency or disaster.
- Methods of alleviating burdens on providers by potentially having the Commission, rather than the providers, coordinate with gubernatorial offices and state emergency management agencies to encourage integrating communications providers and power companies into response planning, execution, and exercises.
- Permitting providers to implement potentially less costly off-site backup power options rather than require all backup power to be supplied by on-site power.
- Alternatives to on-site backup power that have proven successful or have the potential to reduce the frequency, duration, or severity of disruptions to communications services caused by power outages, including those based on other technical solutions for

[164] 5 U.S.C. § 603(c)(1)-(4).

[165] 47 CFR Part 4.

preventing service disruptions caused by power outages or other efforts to reduce the number of service disruptions that the Commission did not raise in the *Notice*.

51. Having data on the costs and economic impact of proposals and approaches will allow the Commission to better evaluate options and alternatives for minimization should there be a significant economic impact on small entities as a result of the proposals in the *Notice.* We expect to more fully consider the economic impact on small entities following our review of comments filed in response to the *Notice,* including costs and benefits analyses, and this IFRA. The Commission's evaluation of this information will shape the final alternatives it considers to minimize any significant economic impact that may occur on small entities, the final conclusions it reaches and any final rules it promulgates in this proceeding.

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

52. None

STATEMENT OF
ACTING CHAIRWOMAN JESSICA ROSENWORCEL

Re: *Resilient Networks,* PS Docket No. 21-346; *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications,* PS Docket No. 15-80; *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35 (September 30, 2021)

This week I had the opportunity to see firsthand the devastation wrought by Hurricane Ida. Commissioner Carr joined me to crisscross a long, flat stretch of Louisiana—from Baton Rouge to New Orleans. The drive itself was telling. Along the way we saw cruel reminders of the storm and the great damage wind and water can do—mangled store signs and piles of refuse still being cleared away. Still, what struck me most was all the blue. Not the grey-blue of Lake Pontchartrain. Instead, it was the bright blue of heavy plastic tarps. They were everywhere. On the pitched rooves of homes. On the flat tops of commercial buildings. They were part of fixing what had blown away.

That image stays with me. But so does the strength and resilience of everyone we met. They love where they live and are deeply committed to restoration in their communities. They are also deeply invested in making sure that when the next storm comes—and it will—they are better prepared. Being better prepared means having more resilient communications. It means making sure our networks work when we need them most. I spoke with Governor John Bel Edwards about this before our trip and I heard it from everyone we met—state public safety leaders in Baton Rouge, 911 call center operators in Livingston, broadband companies in LaPlace, and FirstNet officials in Raceland.

Everyone we spoke with wanted to tell us their stories and give us their ideas. They wanted us to know what worked and what didn't and how stronger and more resilient communications can save lives. I'm grateful Commissioner Carr was able to join me and thank all my colleagues for supporting the swift actions the agency took to assist before and after the storm.

In anticipation of landfall, the Federal Communications Commission set up an information hub for Hurricane Ida, with emergency communications tips in nine languages, tailored media advisories for broadcasters, downloadable Public Service Announcements, communications status reports, and other content.

We deployed FCC staff to Louisiana and the Federal Emergency Management Agency Regional Response Coordination Center in Dallas, Texas, to support spectrum management, perform damage assessments, and prioritize recovery efforts.

In coordination with FEMA and other federal partners, we activated our Disaster Information Reporting System. As a result, we published the first comprehensive assessment of Hurricane Ida's impact on communications networks followed by daily updates.

We provided technical assistance to 911 coordinators, State Emergency Operations Centers, 911 call centers, carriers implementing the Wireless Resiliency Cooperative Framework and other communications providers, and the Louisiana Association of Broadcasters.

We engaged in daily coordination with Federal, state, and local partners, as well as with industry, to help coordinate the transport of necessary communications equipment, fuel, and other resources to help fill communications gaps. We also set up a first-of-its kind team to address coordination with utilities to prevent accidental fiber cuts during debris removal and restoration.

Of course, we had help. Communications companies worked long and hard to restore critical services. All of this made a difference. More than 98 percent of the cell sites in the affected counties have been restored. Other outages trended downward as fast as power was restored.

This is progress. But we have to understand where communications fell short, where recovery took too long, and what changes can be made to make our networks more resilient before the next unthinkable event occurs.

Today's rulemaking gets that effort going. We start by taking a second look at the voluntary Wireless Resiliency Cooperative Framework and its disaster roaming and asking where can it be strengthened. Are best practices enough? Should coordination happen earlier? Be more automatic? This was something that came up repeatedly in our discussions in Louisiana—a desire for this cooperative roaming to work faster, work better, and help keep more people connected in disaster.

We also revisit our Disaster Information Reporting System and seek targeted comment on where there are gaps that need to be filled. 911 call centers should not be the last ones to find out where there are critical network failures. But we learned that during Hurricane Ida, that is exactly what happened. So we ask about how we can improve data collection and timely notification during disasters.

Finally, we renew our inquiry into back up power for communications facilities. Our review of the data collected in the aftermath of Hurricane Ida reveals that the lack of commercial power at key equipment and facilities is the single biggest reason why communications networks failed. Left unaddressed, this problem will only get worse in coming years as we experience disasters with increasing severity, duration, and impact. So our rulemaking explores resilience strategies for power outages—including better coordination between communications providers and power companies and back up power or other measures that could help keep service running after a disaster.

I am hopeful that this rulemaking is the beginning of a broader discussion of our need for resilient networks. Look around. We have hurricanes in Louisiana, a snowstorm in Texas, and wildfires out West. These issues are not going away. We need to think deeply about what network resiliency means and how our policies can support it. So in addition to this rulemaking, next month the FCC will hold a virtual field hearing on Hurricane Ida and the resilient networks now needed in disaster more generally. To make it simple, we'll have it as part of our monthly open meeting in October. Stay tuned for details.

Thank you to the incredible FCC staff who have worked so hard to help pick up the pieces after Hurricane Ida. Thank you for your deep commitment to public safety—something I know my colleagues all share. They include Suzan Barnes, Curt Bartholomew, Michael Caiafa, Justin Cain, Emil Cherian, Paul Coburn, Shawn Cochran, Rochelle Cohen, Vejon Cummings, Joseph "Keith" Davis, Michael Evelyn, Jose Feliciano, Michael Fletcher, John Healy, Debra Jordan, William Kang, Al Knerr, Ron Lovins, Brian Luu, Tim Perrier, Jim Pierson, Haley Ramsauer, Jaime Rivas, Chris Smeenk, JoAnn Smith, John Snyder, Mark Stadnicki, Julia Tu, and David Wright from the Public Safety and Homeland Security Bureau; and Dedrick Roybiski and Juan Silva from the Enforcement Bureau.

Thank you also to those who worked on today's effort, including Justin Cain, Rochelle Cohen, Amanda Farenthold, David Furth, Jennifer Holtz, Deb Jordan, Nikki McGinnis, Saswat Misra, Erika Olsen, Austin Randazzo, and Renee Roland from the Public Safety and Homeland Security Bureau; David Horowitz, Andrea Kelly, Linda Oliver, Joel Rabinovitz, Bill Richardson, Anjali Singh and Chin Yoo from the Office of General Counsel; Kari Hicks, Susannah Larson, and Charles Mathias from the Wireless Telecommunications Bureau; Kirk Burgee and Dan Kahn from the Wireline Competition Bureau; Tom Horan, John Kiefer, Barbara Kreisman and Al Shuldiner from the Media Bureau; Diane Burstein, Suzy Rosen Singleton, and Bill Wallace from the Consumer and Governmental Affairs Bureau; Chuck Needy, Catherine Matraves and Emily Talaga from the Office of Economics and Analytics; Jeremy Marcus, Elizabeth Mumaw, and Ashely Tyson from the Enforcement Bureau; Jennifer Gilsenan,

Karl Kensinger, Kathryn Medley, Kerry Murray, Troy Tanner and Merissa Valez from the International Bureau; Regina Brown and Sarah Stone from the Office of the Managing Director; and Chana Wilkerson from the Office of Communications Business Opportunities.

STATEMENT OF
COMMISSIONER BRENDAN CARR

Re: *Resilient Networks,* PS Docket No. 21-346; *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications,* PS Docket No. 15-80; *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35 (September 30, 2021)

This week, I had the opportunity to travel to Louisiana with Acting Chairwoman Rosenworcel—a state that was hit hard by Hurricane Ida. I appreciated the chance to join the Chair on this visit because it allowed us to hear directly from community leaders, public safety officials, and communications providers that are engaged in the ongoing recovery and restoration efforts.

At the Louisiana State Emergency Operations Center in Baton Rouge, we met with members of the Governor's Office of Homeland Security and Emergency Preparedness. Travis Johnson—the head of interoperability initiatives—told us that when service to a 911 center that served a coastal parish went down, the calls started rolling over to his group's administrative line in Baton Rouge. When those calls starting ringing in, he gathered some pens and paper and had his team start writing down the pleas for help. He read some of those shorthand notes to us: *Water in house, stuck in attic. Need help.* Another read: *Roof off house. Kids ages three and six in home*. Then, shortly after 10:00 PM, the flurry of calls just stopped. No more calls for help—just silence. The Emergency Operations Center still had connectivity, but cellular service in that coastal area was lost. There was no longer any way for those people in need to call for help.

At the same time, we heard stories about networks and call centers that remained resilient, stayed online, and absorbed the worst of Hurricane Ida's punch. In Livingston, Louisiana, we met with Captain Jack Varnado and his team at the area's 911 call center. Captain Varnado and a few others rode out the storm at their reinforced facility, which he noted swayed, creaked, and even leaked a little under the pressure of 100+ miles per hour winds. That call center maintained internet service during the entire storm, even though they lost telephone service for a time.

Further south in Raceland, where homes with blue tarps covering their upper floors seemed to outnumber those with intact roofs, we connected with some of the FirstNet team members that surged support and bolstered connectivity in the area. They brought in COLTs, COWs, and dirigibles to serve neighborhoods and parts of communities where terrestrial service had been knocked out.

To put this storm in context, one of the power companies said they lost about 30,000 utility poles due to Ida, which was more than the number of poles lost in Hurricanes Katrina, Ike, Delta and Zeta combined. At the same time, the telecom network showed increased resiliency. While we saw 38 different 911 call centers lose service across the Gulf Coast area during Katrina, early reports indicate that the number dropped to four in Louisiana this time around.

But the reality is that we can and must do much better. The most important calls in emergencies are the ones to 911. That network needs to be robust and resilient, and its not acceptable when it's the first to fail.

After action reports are still being done. Root causes of the outages are still being analyzed. So we will continue to see what more we can do to promote robust networks. From the feedback I heard in Louisiana this week, I am particularly interested in ideas that could ensure roaming during disasters proceeds more smoothly and seamlessly, in ways we can get state officials more timely information about outages at 911 call centers, and in efforts to deepen the coordination between power restoration crews and their counterparts in telecom. After all, if you track the outage information in the wake of Hurricane Ida, you will see a classic saw tooth pattern in the chart: as telecom services are restored one day, those same

communications lines can be cut by power and other restoration crews as they do their jobs replacing poles and clearing roads. There remains room for improvement there.

I would like to thank my colleagues for their willingness to incorporate some of my pre- and post-Louisiana edits to the item. First, I am glad the FCC is now asking for comment on increasing its situational awareness of 911 and other emergency services, including through stronger industry coordination. Second, I am pleased we are seeking comment on enhancing the resiliency of covered 911 providers, particularly during power outages. I am also pleased that we are seeking comment promoting roaming quickly in qualifying disaster areas. These issues are all vital to improving resiliency.

Finally, I would like to thank the staff of the Public Safety & Homeland Security Bureau for their work on this item. The item has my support.

STATEMENT OF
COMMISSIONER GEOFFREY STARKS

Re: *Resilient Networks,* PS Docket No. 21-346; *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications,* PS Docket No. 15-80; *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35 (September 30, 2021)

Preparing our communications networks to withstand disasters and emergencies has never been more important. Challenges caused by climate change—everything from record high and low temperatures to storms of greater ferocity and scope—are coming into sharper focus. Now is the time for action, and robust, modern communications networks must be part of our national strategy. I'm particularly excited about innovative uses of 5G, like smart meters for energy management, that can help us reduce our country's reliance on fossil fuels and better manage our energy resources.

But those solutions—and all the benefits of benefits of broadband—are only as valuable as they are reliable. I am pleased to support today's Notice of Proposed Rulemaking because it represents a critical step toward keeping Americans connected during emergencies and speeding the restoration of networks when the danger has passed. This is a comprehensive and wide-ranging inquiry, so today I will highlight just a few of the NPRM's important features.

First, this NPRM is an important part of the Commission's work to advance digital equity and inclusion. We should all know by now that the digital divide does not affect all communities in the same way. In particular, Americans of color remain, by a wide margin, less likely to have a home broadband connection than their counterparts: 29 percent of Black adults and 35 percent of Latinx adults do not have a home broadband connection. We also know that extreme weather, natural disasters, and power outages are particularly devastating for communities of color.[239] As Congresswoman Sheila Jackson Lee and I recently discussed during the Congressional Black Caucus Foundation's Virtual Annual Legislative Conference, we saw this terrible dynamic play out in the devastating impact that Winter Storm Uri had throughout the nation, and particularly in central Houston. We will not have equal access to modern communications without improving network resiliency and reliability.

Second, this NPRM seeks comment on whether we should make carrier participation in the Disaster Information Recovery System mandatory, something I have long called on the Commission to actively consider. During a disaster, DIRS provides a wealth of actionable information that can shape the local, state, and federal response. Today, we don't always know if a carrier is not reporting because it has chosen not to or because it has sustained damage that makes the company unable to report. With expanded participation, DIRS reports will be even more valuable. I look forward to robust comments on the costs and benefits of making participation mandatory, and whether there are other ways the Commission could expand participation.

Third, this NPRM brings much-needed attention to issues around backup power. In early 2020, I visited Puerto Rico to learn more about the steps taken to improve network resiliency after Hurricanes Irma and Maria, how communications networks and recovery efforts performed during the recent earthquakes, and what additional actions are needed to ensure that communications networks are always available. As I met with providers, regulators, and everyday Puerto Ricans, a theme emerged:

[239] Press Release, EPA, *EPA Report Shows Disproportionate Impacts of Climate Change on Socially Vulnerable Populations in the United States* (Sept. 2, 2021), https://www.epa.gov/newsreleases/epa-report-shows-disproportionate-impacts-climate-change-socially-vulnerable; Leiserowitz & Akerlof, Yale Project on Climate Change, Race, Ethnicity and Public Responses to Climate Change (2010), http://environment.yale.edu/uploads/RaceEthnicity2010.pdf.

communications services are only as good as their access to power. This is a recurring scenario. During the 2020 earthquakes in Puerto Rico, the overwhelming majority of cell-site outages resulted from power loss, not damage to facilities. The same was true this year after Hurricane Ida. I am glad the NPRM asks detailed questions about how backup power can be deployed to reduce the frequency of power-related service disruptions.

These issues, and many others raised in the NPRM, are urgent and important. Now is the time for the FCC to update our rules for this era of climate-based events. I thank the staff of the Public Safety and Homeland Security Bureau for their hard work on this item and the many investigations that preceded it.