Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 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

VERIZON COMMENTS

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INTRODUCTION/SUMMARY

Hurricane Ida showcased the effectiveness of Verizon's network reliability, disaster planning, and service restoration efforts. Hurricane Ida made landfall just before noon on August 29, 2021 as a Category 4 hurricane with 150 MPH sustained winds. By 11:00 AM on August 30, Verizon had 527 wireless sites out of service in Louisiana and Mississippi, and 397 sites on backup generators. But by 7:00 PM that day, all sites in Mississippi and 201 sites out of service in Louisiana were restored (less than 40 percent of the initial total). By August 31, about half of Verizon's out-of-service sites were served via overlapping coverage from nearby sites, giving most customers access to a signal. Verizon returned key performance markers to the pre-storm baseline by 7:00 PM on September 5, and re-established coverage across all of Louisiana by September 6—at which point over 94 percent of sites in the area covered by the Commission's DIRS activation were in service.

Verizon's efforts also meaningfully benefitted Louisiana's localities. In those first few days, Verizon was able to maintain service across most of New Orleans and Baton Rouge through overlapping cell coverage. Even in the hardest-hit Louisiana parishes—all or nearly all sites were out of service in Assumption, Lafourche, Terrebone, St. John the Baptist and St. Charles parishes immediately after landfall, and over half were out in Tangipahoa, St. Mary, St. Tammany, and Plaquemines parishes—Verizon had largely restored service by September 1 or 2. Verizon restored service in hard-hit Houma on August 30, and in Thibodoux the next day. And Verizon largely restored service to Grand Isle—perhaps the hardest-hit community—through the use of deployable assets by September 6, once crews could safely access the area after September 4. (And before that date, Verizon secured an escort to deploy some assets to the community on September 1 and 2.)

Verizon's experience shows that the cooperative and flexible approach the Commission and Congress endorsed with the Wireless Resiliency Cooperative Framework (the "Framework") works; it facilitates efficient and competition-driven investment in resilient networks. Investment in network infrastructure enabled Verizon to maintain and restore service expeditiously due to overlapping site coverage and on-site backup power. Investment in deployable assets such as portable backup generators, satellite-based backhaul, and mobile operations centers, enabled Verizon to quickly restore service and support first responders and displaced consumers even where commercial power and wireline fiber backhaul were unavailable.[1] Investment in

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[1] *See* https://www.verizon.com/about/news/verizon-frontline-supports-hurricane-ida-response-and-recovery. Verizon's investments and innovation in this area extend to 5G services as well. *See* https://www.verizon.com/about/news/verizon-frontline-unveils-thor (announcing 5G and MEC-capable Tactical Humanitarian Operations Response (THOR) vehicle); and https://www.verizon.com/about/news/verizon-frontline-thor-popular-science-list.

personnel, training and planning enabled Verizon to complete over 1320 site audits, identifying 592 restoration or repair issues of which 340 required tower climbs to address tower and antenna issues.

Verizon's experience after Hurricane Ida shows that prescriptive new Commission rules are not necessary to improve the resiliency of communications networks. Targeted and uniform Commission rules or standards that generally maintain today's flexible approach, however, could play a helpful role for consumers, businesses, and state and local governments by helping ensure that effective disaster preparedness and service restoration methods are used more broadly across different providers and different event types.

***Framework Improvements*.** While not all Framework commitments are amenable to Commission rules, the *NPRM* provides an opportunity to improve the Framework in targeted ways, while preserving the Commission's flexible, non-prescriptive approach that enables wireless providers to invest efficiently in network reliability and nimbly respond to disasters:

- Scope. Framework commitments, whether voluntary or mandatory, could apply to all wireless providers and extend to disaster events beyond ESF-2/DIRS activations, using a transparent and objective process for triggering the commitments.
- Roaming. A general obligation to support reasonable requests for disaster roaming that reflects the realities of disaster situations and wireless network capabilities could be workable.
- Annual Reporting/Review. As Verizon previously recommended, the Commission could establish a standardized annual report on Framework implementation in which wireless providers report their experiences during and lessons learned from the prior year's disaster events.

Situational Awareness. The Commission can foster improved situational awareness for consumers and state and local government by incorporating DIRS into its rules in a competitively neutral way, and by extending Verizon's practice of publicly disclosing certain county-specific wireless DIRS information.

Backup Power. Prescriptive backup power requirements would hinder deployment of new facilities with little if any improvement to providers' ability to maintain and restore service. Any backup power standards would need to be flexible and uniform, and reflect the technical realities of today's wireless networks to preserve service providers' ability to timely deploy new infrastructure and services.

DISCUSSION

I. FRAMEWORK CHANGES SHOULD PRESERVE WIRELESS PROVIDERS' ABILITY TO NIMBLY RESPOND TO DISASTER EVENTS AND INVEST IN NETWORK RESILIENCY AND SERVICE RESTORATION.

A. Verizon's Framework Commitments Meaningfully Contribute to Service Restoration Efforts.

The Framework voluntary commitments endorsed by the Commission and Congress have meaningfully contributed to Verizon's and the industry's broader service restoration efforts. Each disaster event is unique, and apples-to-apples comparisons are elusive. But on balance Verizon's performance over time, including the period corresponding with the Framework, shows that its substantial investment in backup power, deployable assets, and resilient backhaul, coupled with the Framework, has paid off for its customers and their communities.

Beginning with Katrina, the U.S. has experienced a number of hurricane events that for various reasons—typically some combination of loss of commercial power, widespread destruction of backhaul/transport (e.g. fiber cuts or central office damage), and lack of site access due to fallen debris or flooding—entirely or nearly entirely knocked out wireless service across

several county-wide geographic areas. Comparing Verizon's experience in Ida with that of other hurricane events that had the most devastating impact on Verizon's wireless network shows how resiliency and service restoration practices continue to improve:

- After Hurricane Katrina in 2005, 86 percent of Verizon's affected network was restored 10 days after landfall, with 70 percent of sites in greater New Orleans in service.[2] For Ida, *90 percent of sites in the storm's path were in service within a day or two after landfall*, including in New Orleans, with about half of out-of-service LTE sites receiving overlapping coverage from operational sites. And Verizon restored coverage throughout Louisiana (with 94 percent of sites in DIRS-activated counties) 6 days after landfall.

- After Superstorm Sandy, Verizon was able to restore service to almost normal levels of service in the coastal areas of the hardest-hit counties in New Jersey and New York within 8-9 days after landfall.[3] After Ida Verizon achieved that goal throughout Louisiana within 6 days, despite the fact that all or nearly all sites in some parishes were out of service, impact to electrical power and backhaul was more severe, and access and debris removal challenges were at least as severe as Sandy.

- After Hurricane Michael, in Bay County, Florida, Verizon's backhaul network was particularly hard-hit and lost service to virtually all LTE sites. It took 8 days to restore service to half of Verizon's LTE sites and nearly two weeks to restore full coverage. But for Ida, Verizon substantially restored service throughout Louisiana within *6 days*, and in several Louisiana parishes and Mississippi counties where service was lost to all or nearly all LTE sites, service was fully restored within 1-3 days.

Verizon does not suggest that this is a scientific analysis. Over time, the trend line is necessarily a zig-zag rather than a straight slope, as individual disaster events will affect different geographic areas and networks differently, but it shows demonstrable progress. And the practices and policies underlying the Framework have contributed to Verizon's performance in other hurricane, wildfire and related Public Safety Power Shutoff (PSPS) events, and other disasters regardless of whether ESF-2 or DIRS was activated.

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2 *See* https://ecfsapi.fcc.gov/file/6518423874.pdf.

3 *See* https://www.verizon.com/about/news/vzw/2012/11/pr2012-11-09.

B. The Commission Can Expand the Framework to Other Major Events.

New triggers for Framework (and DIRS) activation are appropriate.[4] Over the years many disaster events not expressly covered by the Framework, such as wildfires in the western U.S., impacted communications networks and consumers more than some covered hurricane events. Recognizing that fact, in practice Verizon already employs the Framework commitments, where relevant, to events beyond a formal ESF-2/DIRS activation. Verizon initiated its internal procedures for disaster roaming, for example, in March and December 2020 after the tornado and terrorism events in Nashville, Tennessee, in advance of the Nor'easter event last month and after this month's devastating tornadoes in Kentucky well before the Commission activated DIRS. Verizon activated the same public information campaign for California wildfires as were used for hurricane events that triggered ESF-2/DIRS activation.[5] And Verizon participates in state- and (where possible) locally-administered EOCs regardless of an ESF-2/DIRS activation. Verizon's own practices are thus consistent with expanding the types of events that trigger the Framework commitments, and Verizon supports the Commission "work[ing] with carriers to revisit the prerequisites" for activating the Framework and, for that matter, activating DIRS as well.[6]

Authorizing the Chief of the Public Safety and Homeland Security Bureau to activate the Framework based on ESF-2 *or* DIRS, coupled with a new DIRS trigger that accounts for

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4 *See Resilient Networks, Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications, and New Part 4 of the Commission's Rules Concerning Disruptions to Communications, Notice of Proposed Rulemaking*, PS Docket No. 21-346, PS Docket No. 15-80, and ET Docket No. 04-35, FCC 21-99, ¶ 15 (2021) ("*NPRM*").

5 *See* www.verizon.com/about/news/verizon-responds-western-wildfires.

6 *NPRM* ¶ 15.

objective factors, is one potential approach. Additional activations should be limited to FEMA-recognized major disaster events, such as an emergency or major disaster declaration under the Stafford Act,[7] accompanied by a request for Framework activation from FEMA. Other relevant factors for Framework activation would include whether the event will: affect a significant geographic area (e.g. coverage loss across multiple counties); result in outages of significant duration; and affect multiple communications providers.[8] In addition, the Bureau and requesting agencies should consult with service providers in the area prior to activation to confirm the impact or likely impact on service and the status of any restoration activities, as not all disasters result in service-affecting outages. Verizon welcomes discussing this potential approach with relevant federal and state emergency management stakeholders. Such an effort would not necessarily require amending the Commission's rules or mandating DIRS participation, though the rules could be changed in a carefully-crafted manner.

C. The Wireless Industry Already Engages Communications Industry and Other Stakeholders in Resiliency- and Framework-Related Activities.

The Commission should not extend the existing Framework to industry stakeholders beyond wireless service providers.[9] Doing so would at best be superfluous; in practice wireless providers already coordinate service restoration activities with other communications providers at DHS's National Coordinating Center for Communications (NCC), state-administered EOCs, and out in the field. At worst, it could make the Framework too unwieldy to remain effective. For

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7 *See* 2 U.S.C. §§ 5121-5207.

8 NORS reporting under the Part 4 rules would continue to apply to other less impactful outage events, and as noted below the Commission's rules will allow state agencies secure access to those reports in the near future.

9 *See NPRM* ¶ 16.

example, extending the Framework to facilities-based backhaul providers could unnecessarily interject uncertainty into already robust and comprehensive commercial transport agreements. Wireless backhaul providers already are typically subject to service-level agreements that govern service outages and restoration practices, and the competitive marketplace gives wireless providers ample incentive to invest in reliable backhaul, whether self-provisioned or through third parties.[10] Formalizing mutual aid efforts on service restoration also would be complicated and lead to unanswerable questions. For example, as between wireless, wireline, cable, and broadcasters, who should get priority for generator fuel if supply runs short? These issues are best resolved on an event-specific basis through multi-stakeholder participation at the NCC and state EOCs instead, and by encouraging investment and preparation by individual companies.[11]

The Framework's commitments reflect the nature of wireless networks and providers' relationships with one another and with local governments, and do not easily carry over to other industry sectors. Whether other industry sectors might voluntarily enter into similar arrangements is a different question that depends on the practices and needs of those sectors. But wireline providers and covered 911 service providers already are closely tied into existing federal, state and local service restoration activities,[12] as are cable operators who rely on much of the same aerial and underground infrastructure as wireless and backhaul providers (and who may

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[10] *See* Verizon Comments, PS Docket No. 11-60, at 11-13 (Apr. 26, 2021); Verizon Letter in PS Docket No. 11-60, at 1-2 (June 17, 2020); and Verizon Comments, PS Docket No. 11-60 (Feb. 8, 2019).

[11] *See* Verizon Comments, PS Docket No. 11-60, at 15 (Apr. 26, 2021); and Verizon Comments, PS Docket No. 11-60, at 8-9 (Apr. 30, 2019).

[12] Requirements for covered 911 service providers also could implicate state and local government contracts and funding resources. *See NPRM* ¶ 42.

be backhaul providers themselves). Thus, new stand-alone sector-specific "frameworks" may be unnecessary.

D. Inflexible, Prescriptive Rules Would Not Improve the Effectiveness of Disaster Roaming Arrangements

Verizon's experience belies the *NPRM*'s presumptions about the availability of disaster roaming during Hurricane Ida, which do not account for the real-world issues associated with activating automatic roaming under any circumstances, including during disasters. A requirement that wireless providers enter into reasonable disaster roaming arrangements could be workable, however, if providers have flexibility to account for technical and capacity issues associated with automatic roaming.

1. *The Framework's Disaster Roaming Commitment Worked as Designed for Hurricane Ida.*

Verizon has procedures and protocols to implement the Framework's disaster roaming commitment, which worked as designed after Hurricane Ida. The *NPRM's* presumption that "there was limited transparency, and therefore understanding, regarding the status of roaming" after Ida is not consistent with Verizon's experience; Verizon's roaming organization cooperated closely and transparently with their counterparts at other providers well before and after Ida's landfall.[13] And Verizon supported both inbound roaming where requested, and outbound

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[13] *See NPRM* ¶ 18. It is not clear what the *NPRM* means by "transparency." Verizon and others spent considerable time after Ida's landfall dispelling rumors and misunderstandings as to when, whether, and where disaster roaming had been activated. But these misunderstandings appear to be the result of miscommunications outside the companies' on-the-ground business organizations (who coordinated closely) about the status of those efforts, misperceptions about what the Framework commitments actually entail, and mistaken expectations about the feasibility and availability of disaster roaming in hard-hit areas.

roaming where we determined our customers would benefit. Indeed, Verizon has never had a roaming request unreasonably denied or delayed during any disaster event.

Nor have the Framework's prerequisites for roaming worked "to the detriment of consumers."[14] Verizon initiates disaster roaming activities irrespective of whether ESF-2/DIRS is activated.[15] Where possible, for example in advance of a hurricane's predicted landfall, coordination begins days before an event, whether or not ESF-2/DIRS has been activated. And Verizon and others have invoked this process in situations *outside* of DIRS activations, including in Tennessee after tornadoes hit the Nashville area in early March 2020, after the December 2020 bombing in Nashville, in advance of last month's Nor'easter event, and in response to this month's devastating tornadoes in Kentucky days before the Commission activated DIRS.

2. *The Disaster Roaming Prerequisites Serve Important Network Engineering and Public Policy Purposes*.

The Framework never envisioned that roaming would—or should—occur for *every* DIRS activation or major disaster, and good public policy counsels strongly against such an approach. The commitment applies only if (1) a carrier requests it, (2) that carrier has taken meaningful steps to restore its network, and (3) roaming is technically feasible and will not adversely affect service to the home carrier's own subscribers. These conditions reflect a careful balance between the benefits of roaming for consumers, the technical realities of roaming in any circumstance, and the acknowledged "free-rider" risk if a disaster roaming duty is taken to an extreme.[16]

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14 *Id.* ¶ 18.

15 *See supra* Section I.B.

16 *See* Testimony of Harold Feld, Public Knowledge, Senate Commerce Committee, at 11 (June 22, 2021) ("if mandatory network sharing agreements are in effect … carriers that invest in more reliable networks face a free-rider problem [as o]ther networks that chose to invest less in reliability will still remain operational by leveraging the responsible carrier's investments in resiliency"), available at https://www.commerce.senate.gov/services/files/779F31E9-70F5-4073-

Support for inbound roamers always requires safeguards and testing to ensure that service and security for one's own customers is not compromised, particularly for home-market roaming like this. The need to care for these factors is *more acute* after disaster events, not less. Providers' own networks are often damaged and face capacity limitations that risk service degradation for their own customers and for other providers' customers that roam inbound in the ordinary course. These customers may include first responders and other federal, state and local government agencies. Unlike the careful planning taken in advance of a commercial roaming agreement, after a disaster event network status and capacity often is not adequately known until technicians, fuel trucks, and other disaster recovery personnel have access to the affected areas, until wireless providers have had opportunity to communicate with backhaul and other transport providers, and until state and local government emergency management and first responder needs and locations are assessed.

That a provider's network withstands a disaster reasonably well relative to others does not mean it can support traffic from another provider. For example, a provider with a wireless network generally designed to support maximum usage levels for 10,000 customers and 1,000 inbound roaming users in an area may not be able to handle all the projected traffic of a competitor with 50,000 customers in the same area. Instead, both providers will need to consider one another's potential traffic loads; the status of service restoration in a particular area; whether

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9DD2-57B5B7B072F8. And for home-market roaming—which is what disaster roaming entails—the Commission similarly recognizes that the public policy case for automatic roaming is less compelling when "the requesting carrier is seeking roaming for an area where it is already providing facilities-based service" or if there is adverse impact "on the *incentives for either carrier to invest in facilities and coverage, services, and service quality*." *See Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services*, 25 FCC Rcd 4181, ¶ 39 (2010) (emphasis supplied).

available service is heavily used by first responders and state/local governments; and the extent to which users may have evacuated into or out of an area.

These situations were replete across Louisiana and Mississippi after Ida, and varied from parish to parish. In many coastal areas, there were no competitor networks available for roaming in the first place; disaster roaming in those areas was a moot question. In other parishes Verizon and its competitors had fewer than 10 percent of their sites in service. In those areas, adding the traffic of one or two additional service providers on an already burdened network could severely degrade service for all users, including first responders. And parishes further inland reflected a hodgepodge of out-of-service sites, traffic demands, and service restoration challenges that varied between service providers and between parishes. These challenges reflect basic realities of network management and service restoration during and after high impact disaster events. They cannot be addressed by "improvements to the Framework," much less by prescriptive "criteria ... to determine that, once met, roaming should be available automatically in qualifying disaster events."[17]

3. *Formal Agreements Between Providers and Established Implementation Practices Make Prescriptive Rules Unnecessary*.

Despite these challenges, wireless providers continue to apply lessons learned during disaster events and improve our agreements and technical implementation of disaster roaming. Verizon has now entered into commercial agreements with AT&T and T-Mobile that incorporate bilateral LTE roaming terms and conditions for disaster situations.[18] Verizon has also entered

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[17] *See NPRM* ¶ 18.

[18] These agreements make the *NPRM*'s questions concerning technical infeasibility, 3G versus 4G networks, and making roaming "automatically and seamlessly accessible to user devices without requiring any action from the user," largely moot. *See id.*

into such agreements with some mid-sized and smaller service providers. These agreements and the associated real-time implementation efforts ensure that many of the technically complex and often time-consuming steps necessary to reliably and securely activate roaming in any situation, such as device authentication and security, may be addressed before a disaster event occurs. Other smaller wireless providers with whom Verizon does not have a commercial agreement, but are interested in entering into a disaster-specific arrangement, are free to contact Verizon's roaming organization to initiate that process.

These agreements do not obviate the need for providers to assess the state and capacity needs of one another's networks prior to activating roaming in an affected area, but have even further streamlined the process in a manner that reflects the industry's lessons learned during prior disaster events. Where these agreements exist, though, Verizon expects that outright denial of a request to activate disaster roaming will be extremely rare. While prioritization of one's customers and different types of traffic (voice, text, broadband speed data) may be necessary, it is in service providers' mutual interest to be as supportive as possible of requests for inbound roaming, given that the tables may be turned in the next disaster event (or even in the next county over during the same event).

In short, the *NPRM* incorrectly presumes that the Framework roaming commitment did not work as appropriate during Hurricane Ida. But if the Commission takes some sort of action to formalize the disaster roaming commitment, a formulaic approach dictating when a provider requests or allows disaster roaming would be unworkable and counterproductive in practice. The Commission need only adopt the Framework commitment's reasonableness standard and enumerate a non-exhaustive list of relevant factors, including those described above, appropriate for purposes of determining reasonableness.

E. Mutual Aid Is a Standard Component of Verizon's Disaster Preparedness and Service Restoration Practices.

Verizon has previously described to the Commission several mutual aid/support actions it and other providers have taken, in addition to roaming.[19] These include: sharing fuel resources (including with wireline providers); connecting to an alternative backhaul provider after Hurricane Michael; sharing information with one another on access and debris removal; and sharing equipment and technical expertise in Puerto Rico after Hurricane Maria. After Hurricane Ida, customers of AT&T, T-Mobile, and any other providers were free to use Verizon's charging and deployable Wi-Fi hotspot stations to recharge their devices and to use an available Wi-Fi connection on their devices for voice calls, text messaging and internet access. Verizon also participated in coordination efforts with other providers via the NCC as well as state and local emergency management coordination efforts, where the company was available for mutual aid inquiries from other service providers.

But as Verizon previously explained, not every disaster event will necessitate mutual aid, and the type of mutual aid opportunities that exist between wireless providers are not amenable to rules or formal agreements.[20] If providers are all reasonably well-prepared with deployable assets, staging areas, and EOC participation, mutual aid may be unnecessary. Verizon and other wireless providers already coordinate efforts with wireline and cable providers at the NCC and EOC level, and many of Verizon's mutual aid efforts described above have involved support for and from wireline providers. Changes to the Framework are thus unnecessary to further improve mutual aid efforts.

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19 *See id.* ¶ 19.

20 *See* Verizon Letter and Response, PS Docket No. 11-60, at 3-7 (Nov. 26, 2018); and Verizon April 2021 Comments at 14-15.

F. Verizon's Disaster Planning and Service Restoration Activities Reflect the Framework's Local Government Best Practices.

As with mutual aid, the local and state government coordination commitments of the Framework (and the related recommendations of the Commission's Broadband Deployment Advisory Committee) are standard components of Verizon's disaster preparedness and service restoration practices.[21] Whether and to what extent a practice is relevant for a particular disaster, though, is necessarily event-specific. Still, state and local governments were good partners before, during and after Hurricane Ida, and Verizon used the Best Practices where relevant and helpful. Framework modifications or new rules in this area are unnecessary.

Planning Before Disasters and Emergencies Occur. Verizon did not encounter local restrictions on access and restoration activities necessitating any sort of formal waiver. Verizon worked directly with state and local emergency management authorities in Louisiana to share information and provide regular updates on the status of recovery efforts. In coordination with state and local authorities, Verizon staged deployable equipment in areas north of the affected coastal parishes and was able to rapidly deploy them as needed to hard-hit areas. These assets included Cells on Wheels (COWs), Cells on Light Trucks (COLTs) and Satellite Pico Cells on a Trailer (SPOTs). In the affected areas, Verizon positioned that equipment to supplement service in areas that may have needed extra network capacity and to replace flooded sites as the waters receded. And via the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable its technicians and other personnel to access the flooded areas.

Coordination During and After a Disaster Event. Verizon maintains standard procedures and protocols for obtaining access to affected areas and communicating with local

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[21] *See NPRM* ¶ 20.

governments during all disaster events, which integrate this type of communication and coordination with state and local government agencies.[22] Verizon worked directly with state, parish and other local emergency management authorities via the State of Louisiana's EOC in Baton Rouge, and through local EOCs in New Orleans, Houma, Hammond, Metairie, LaPlace, Lafourche and Grand Isle. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the coordination systems described above. As noted, Verizon worked directly with emergency management authorities at the EOCs, the NCC and FEMA to share information and provide regular updates on the status of recovery efforts. (And even as these activities were under way, Verizon transported resources across Ida's projected track from the Southeast to the Mid-Atlantic and Northeast regions.)

***Education Awareness Campaigns*.** Verizon published network status and related information available to state and local governments on its website in advance of Ida's landfall and for several days afterward. Verizon also confirmed established industry points of contact and lines of communication at venues like the NCC and through informal communications. We also followed our standard process of establishing points of contact with relevant state and, where available, local points of contact with responsible emergency management and first responder agencies. And Verizon supports preparedness exercises with local authorities when invited to do so, and conducts internal exercises at least annually.

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[22] In 2021, Verizon deployed its Frontline resources for first responders to 128 named wildfires—none of which involved DIRS activation—across 16 states and nearly 200 communities, providing a wide variety of solutions including repeaters, mobile hotspots, routers, smart devices, drones, and deployable satellite-based solutions such as SPOTs. *See* https://www.verizon.com/about/news/verizon-frontline-deployed-128-named-wildfires-16-states-2021.

II. THE COMMISSION CAN TAKE TARGETED STEPS TO IMPROVE SITUATIONAL AWARENESS FOR PUBLIC SAFETY STAKEHOLDERS AND CONSUMERS.

A. Emergency Management Agencies and Consumers Benefit from Actionable Information.

Subject to appropriate safeguards for competitively- and national security-sensitive information, Verizon has expanded the network status information available to customers and public safety stakeholders to set the company apart in the competitive marketplace. In Verizon's experience such information is helpful if it is actionable—i.e., it enables consumers to take actions more likely to contact help and assistance, or it helps emergency managers to better plan their activities. Beginning in 2018, for example, Verizon established an event-specific website for significant disaster events describing affected communities and providing other information for consumers, such as the location of charging stations and eligibility for service discounts.[23] For Hurricane Ida, this involved twice-daily updates on service restoration status from landfall until service was fully restored on September 6, including identifying communities where service was restored or still out of service, the location of charging centers and other resources for customers.[24]

In fall 2019, Verizon committed to publish its total percentage of sites out of service for each county covered by a DIRS activation on its public website, and did so throughout the 2020 hurricane season, for the 2020 Derecho storm in Iowa, and again for Hurricane Ida.[25] This practice has proven useful in informing public officials, first responders, and news organizations

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23 *See* https://www.verizon.com/about/news/emergency-resource-center.

24 *See* https://www.verizon.com/about/news/verizon-response-hurricane-ida.

25 *See* https://www.verizon.com/about/news/disaster-information-reports.

of the impact of a disaster event and the status of Verizon's service restoration efforts, without detracting from employees' service restoration responsibilities.

Verizon also affirmatively notifies wireless customers of outage events that may affect them through device-level apps when possible, and makes outage information available online to its wireless and wireline customers. Beginning in late 2019, Verizon rolled out a system of outage-related communications to its wireless customers that provides ongoing updates on the status of network outages via customer-facing IVR, website, chat, and other care systems.[26] This outage notification is proactive and incorporates text messaging and uses a device's My Verizon app as well.[27]

B. Expanding the Use of DIRS and Disclosure of Certain DIRS Information Could Improve Situational Awareness for Consumers and Emergency Management Agencies.

Recent Commission action in this area is consistent with Verizon's practices. Earlier this year the Commission adopted balanced rules that will give participating state agencies secure access to NORS and DIRS information, including the more sensitive information in those reports.[28] The Commission is also considering new rules that would expand the types of outages subject to its PSAP notification rules which, subject to some refinements, would improve

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[26] *See* Verizon mobile network notification and outages FAQs, available at https://www.verizon.com/support/networkoutage-faqs/. Verizon's residential wireline customers also may access outage information online. https://www.verizon.com/support/residential/service-outage.

[27] Verizon also provides public information relating to disaster events in Spanish language on a case-by-case basis, depending on the nature of the event and the demographics of the affected area such as Hurricane Irma in southern Florida and Hurricane Maria in Puerto Rico. And Verizon maintains 24/7 customer care for Spanish-speaking customers.

[28] *See Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications*, Second Report and Order, 36 FCC Rcd 6136 (2021).

PSAPs' situational awareness.[29] The *NPRM* also suggests other potential measures that could improve situational awareness, including requiring DIRS for all facilities-based wireless providers. (Should the Commission make DIRS mandatory, it should maintain its policy of discontinuing NORS filings in the DIRS-covered area.)[30] Verizon also would support extending its internal policy of posting county- and company-specific DIRS information to facilities-based wireless providers generally (subject to protections for competitively sensitive information).[31]

Other potential reporting rules on which the Commission seeks comment, however, would constitute reporting for its own sake without consumer benefit. With respect to broadband services, as Verizon has previously advised the existing outage reporting requirements already capture most significant broadband outages since broadband and voice services increasingly use the same IP-enabled networks, so additional rules would be duplicative.[32] Also, real-time reporting of the status of Framework implementation during an event would not only be unworkable but would undermine the *NPRM*'s intent to draw a balance between improving situational awareness and allowing providers to focus on service restoration. Real-time reporting would require wireless providers' public policy offices to constantly pull emergency

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29 *See* Verizon Comments in PS Docket No. 15-80, at 3-14 (July 30, 2021).

30 *See NPRM* ¶¶ 29-31.

31 Any new disclosure measures should be competitively neutral; wireless users connect not only to wireless networks for voice calling, but increasingly to public Wi-Fi networks operated by third party providers. A limited outage of a single or a few wireless sites can be reportable under NORS and DIRS, even when there is limited or no impact to callers due to overlapping coverage, but a public Wi-Fi network covering a large metropolitan area is not.

32 As Verizon has explained, "a better and more targeted approach to account for broadband outages would be to add additional 'services affected' and drop-down fields to the existing 'NORS' reporting system to account for changes in technologies." Verizon Comments, PS Docket No. 15-80 (Aug. 26, 2016).

management and technical operations away from their time-sensitive service restoration efforts.[33] Bureau staff would obtain the same information for the same purpose as part of an annual or post-event report, without interfering with critical service restoration activities. Verizon has previously supported an annual report with an overview of a provider's Framework implementation efforts. With the rule changes Verizon recommends, these reports would provide staff with insight into providers' network resiliency-related initiatives on a more regular basis than the ad hoc post-event reviews the Commission has traditionally used.[34]

III. PRESCRIPTIVE BACKUP POWER RULES WOULD UNNECESSARILY HINDER DEPLOYMENT OF NEW FACILITIES WITH LITTLE PUBLIC SAFETY BENEFIT.

Hurricane Ida's aftermath prompted some parties to suggest a need for new backup power regulations. But context is warranted. Entergy had over 1 million outages in the area, and over 30,000 poles damaged—compared to 17,000 for Katrina, and greater than Hurricanes Katrina, Ike, Delta and Zeta combined.[35] Yet by September 6, Verizon had re-established coverage throughout *all* of the affected parishes in Louisiana, even as several of the hardest-hit areas were still largely without power despite Entergy's diligent efforts. How wireless providers were able to restore service as quickly as they did, despite Ida's impact on the power grid, is the better question. And it was not due to backup power requirements.

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33 *NPRM* ¶ 25. It is precisely for this reason the Commission already waives NORS reporting during a DIRS activation. *See* Public Notice, 24 FCC Rcd 7861 (PSHSB 2009) ("decreasing the reporting obligations of communications providers suffering outages during a disaster will allow those providers to concentrate their efforts on restoring and maintaining their communications facilities for public use").

34 *See* Verizon Comments, PS Docket No. 11-60 (Apr. 29, 2019).

35 *See* https://www.entergynewsroom.com/article/ida-restoration-remains-vigorously-underway/.

A. Backup Power Was Not Verizon's Primary Service Restoration Challenge After Hurricane Ida.

After Hurricane Ida, site access and debris removal, not backup power, were Verizon's more significant service restoration challenges. Refueling generators, trucking in deployable assets, and repairing backhaul require access to the site's local area—which is not possible when storm debris makes roads impassable or unsafe for days, or when state/local law enforcement or curfews prohibit access. Verizon began moving resources as soon as possible on August 30, and had completed hundreds of site surveys a couple days later, but debris, curfews and road closures necessarily limited the ability to refuel generators and take other actions. And Verizon faced similar challenges during California's wildfires this year, where state emergency management agencies understandably restricted access to areas near the fire zones.

Nor was coordination with Entergy a significant problem. Verizon and other providers coordinated closely with Entergy in the days after Ida's landfall on debris clearing and other critical service restoration efforts. Coordination between the communications industry and electric utilities is already under way and bearing fruit.[36] And state emergency management agencies already "integrat[e] communications providers and power companies into response planning, execution, and exercises."[37]

There is no secret to maintaining and restoring backup power: providers must simply invest in generators, fuel, and the employees to maintain them. This is how Verizon has been able to maintain its network during PSPS and wildfire events in California, and how it was able to keep hundreds of sites and switching centers in operation immediately after Ida's landfall. A

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36 *See* Verizon April 2021 Comments at 11-12.

37 *See NPRM* ¶ 36.

vast majority of Verizon's macro 4G LTE sites have 24-72 hours of on-site backup power, and nearly all the rest support a portable generator. Where Verizon does not have on-site power, it is typically due to space, landlord, or zoning/environmental reasons, or where coverage is provided by a site with on-site power. And all switching centers have backup generators.

B. Any New Backup Power Rules Should Give Deference to Providers' Engineering Judgments and Support Timely Deployment of New Infrastructure.

While the *NPRM* understates the extent to which the industry has addressed backup power availability, Verizon's experience indicates that carefully targeted, flexible and uniform standards at the Federal level could be workable. Any backup power rules and policies, however, will involve important public policy tradeoffs. As Verizon explained just this past April:

> Maintaining on-site backup power is not always feasible and may be precluded by state or local zoning or environmental restrictions. For this reason, there is wide stakeholder acknowledgement that regulators should not expect service providers to maintain on-site backup power such as diesel generators and battery arrays at all transmitter sites. In some cases, battery but not generator backup is a viable option. But requiring backup power at all sites would make many technically infeasible due to space and engineering constraints, and in extreme cases could legally preclude the deployment of new facilities due to siting or environmental restrictions. And such a policy would adversely affect the deployment and availability of new 5G services that rely heavily on smaller facilities inconspicuously installed in more dense urban and suburban areas.[38]

The use and availability of on-site backup power will depend on each of these factors, together with a provider's network planning and engineering judgments about the risk that commercial power will be lost, the ease with which generators can be refilled in a particular area, and where service would remain available from other sites, among other things.

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[38] *See* Verizon April 2021 Comments at 18.

Planning and managing backup power resources thus requires case-by-case judgments that are not amenable to prescriptive rules. Rules and policies that micromanage or enable regulators to routinely second-guess or delay these granular network engineering decisions will do more than aggravate a service provider's legal department. They will have a daisy chain effect on site placement, cost, and service reliability across a geographic area—an already complex process under existing state and local zoning and landlord restrictions. They will frustrate federal and state policies supporting deployment of new wireless facilities to improve service to consumers, not to mention the Commission's exclusive Title III licensing authority over wireless providers.[39] And in a worst case scenario they could effectively preclude the deployment of new innovative services, and even compel providers to allocate backup power resources in a manner inconsistent with governments' and consumers' service restoration needs. For example, in some cases it would make little sense to use limited fuel resources to refill a site's generator if the area is adequately served by other sites. Rules that would require minimum or ongoing backup power availability at that site, however, could make that fuel unavailable for other more critical sites or for mutual aid efforts. Only flexible, feasible, uniform and predictable standards could serve the public interest.

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39 *See* 47 U.S.C. § 303(b).

CONCLUSION

Verizon's network performance and rapid service restoration during and after Hurricane Ida reflects how the company applies lessons learned from each disaster event to continually enhance the resiliency and reliability of its networks, and improve its ability to mitigate and quickly respond to service disruptions. That approach will continue after Hurricane Ida regardless of the outcome of this proceeding. But if the Commission adopts new requirements, it should preserve providers' ability to improve network resiliency through this iterative process and not impose counterproductive prescriptive regulations.

Respectfully submitted,

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