



**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

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In the Matter of the Order Instituting)
Rulemaking Regarding Emergency Disaster) Rulemaking No. 18-03-011
Relief Program, Responses of Sprint)
Communications Company, L.P. (U 5112 C),)
Sprint Spectrum L.P. (U 3062 C), and)
Assurance Wireless USA, L.P. (U 4327 C))
)

**SPRINT OPENING COMMENTS REGARDING ASSIGNED COMMISSIONER'S
RULING AND PROPOSAL FOR RESILIENCY AND RESPONSIVENESS
REQUIREMENTS FOR COMMUNICATIONS SERVICE PROVIDERS DURING
DISASTERS AND POWER SHUTOFFS**

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I. INTRODUCTION

Pursuant to Rule 6.2 of the California Public Utilities Commission (“CPUC” or “Commission”) Rules of Practice and Procedure, Sprint Communications Company L.P. (U 5112 C), Sprint Spectrum L.P. (U 3062 C), and Assurance Wireless USA, L.P. (U 4327 C) (collectively, “Sprint”) hereby respond to Assigned Commissioner Batjer’s Ruling issued in Phase 2 of the Order Instituting Rulemaking Regarding Emergency Disaster Relief Program, R.18-03-011 (“Rulemaking” or “Proceeding”), on March, 6, 2020 (“the ACR”) directing parties to respond to the questions set forth in Section 4 of the ACR. The ACR includes a series of Assigned Commissioner’s Proposals (“Proposal”) intended to develop the record in this proceeding on issues of telecommunications network resiliency and responsiveness requirements applicable in times of emergency and during Public Safety Power Shutoff (“PSPS”) events.¹ The ACR directs parties to comment on whether the Commission should require telecommunications providers to maintain backup power at key facilities to ensure a minimum level of service and whether the Commission should require critical facility location, disaster preparedness and outage information sharing with emergency responders.² The ACR further directs all parties to this proceeding to respond to the questions contained in the Proposal.

Sprint appreciates the opportunity to provide feedback in response to the ACR questions and Proposal and shares the Commission’s view that in emergency situations, customer access to 9-1-1 and other key emergency response information is extremely important. This is a complex evaluative undertaking, that to be done well, must be premised on a thorough understanding of how telecommunications networks were designed and how they operate. Telecommunication network

¹ See CPUC R.18-03-011, Assigned Commissioner’s Ruling, dated 3/6/20 at 1.

² *Id* at 2.

resiliency efforts and tools, restoral abilities, network architecture constraints, differing viable backup power options, backhaul design including other network elements that are owned and maintained by other companies, and existing industry best practices and collaboration and cooperation agreements, are among the many elements and differing complexities that the Commission should consider when striving to ensure access to 9-1-1 services. It is also important to contemplate the wide array of emergency events ranging from wildfires, to floods, to earthquakes to Public Safety Power Shutoff (“PSPS”) events that can lead to service disruptions, despite detailed resiliency planning. Accordingly, network restoral plans should be an integral element to this conversation. Ensuring that wireless telecommunications networks are resilient and can be restored efficiently requires collaboration from other telecommunications providers, electric utilities, backhaul providers, emergency response agencies, the CPUC and various other state and local regulatory agencies.

Sprint supports the Opening Comments filed by CTIA in this Proceeding. For sake of brevity, Sprint will refrain from restating the arguments proffered by CTIA, and instead, will provide additional information where appropriate.

II. SPRINT’S DISCUSSION IN RESPONSE TO ACR QUESTIONS

1. Applicability of Requirements: The Proposal states that the requirements shall be applicable to all companies owning, operating, or otherwise responsible for infrastructure that provides or otherwise carries 9-1-1, voice, text messages, or data.

(a) Is this definition of applicability reasonably tailored to ensure regulatory compliance over all communications service providers? Why or why not?

Sprint urges the Commission to limit the applicability of any of the requirements contemplated in this proceeding, that appropriately fall within the Commission’s

regulatory jurisdiction, to only facilities-based carriers, and only to the extent that the carrier owns and controls the relevant portions of their network. For example, a wireless carrier that purchases backhaul service from another unaffiliated company, should not be responsible for implementing compliance measures for equipment that it does not own.

(b) Which types of providers, if any, should be excluded from these requirements because their services are not essential to reliable access to 9-1-1 and the distribution of essential emergency information?

For the same reasons that Sprint suggests that facilities-based carriers should not be subject to compliance obligations for portions of their network that they do not own control, non-facilities-based carriers who, by definition do not own network facilities, should not be subject to the rules contemplated in this Proceeding.

2. Alternatively, D.19-08-025 defined communications service providers into the following categories: (1) facilities-based and non-facilities-based landline providers include 9-1-1/E9-1-1 providers, LifeLine providers, providers of Voice Over Internet Protocol [VoIP], Carriers of Last Resort [COLRs], and other landline providers that do not fall into the aforementioned groups; (2) wireless providers include those that provide access to E9-1-1 and/or LifeLine services; (2A) facilities-based wireless providers; and (2B) non-facilities-based wireless providers, include resellers and mobile virtual network operators [MVNOs].³

(a) For purposes of Phase II, should the Commission apply the definition from D.19-08-025, instead of the proposed definition in the Proposal?

In addition to Sprint's suggested exclusion of non-facilities based providers and excluding responsibility for network facilities that are not owned or controlled by

telecommunications carriers, as discussed in responses to Question 1(a)-(b) above, Sprint notes that some of the requirements contemplated in the ACR and Proposal go beyond the CPUC's regulatory jurisdiction over information services and exceed its regulatory authority over wireless service providers. Thus, Sprint suggests that the Commission further clarify which communications service providers are excluded from certain backup power and resiliency obligations outlined in the ACR and Proposal.

3. Definition of Resiliency: The Proposal defines resiliency as the ability to recover from or adjust easily to adversity or change and is achieved by Providers through utilizing a variety of strategies. The proposal lists an array of strategies and provides definitions for each one.

(a) *Please provide comments on the definition of resiliency in the context of communications service resiliency strategies and their definitions.*

(b) *Please comment on any recommendations or modifications that should be considered to the proposed resiliency definition and the resiliency strategies. Please provide a complete discussion for any proposed recommendations or modifications.*

Sprint appreciates the Commission's restraint and limited approach to directing specific resiliency requirements and tacitly acknowledging that a proscriptive "one-size-fits-all" set of rules will not work. Accordingly, Sprint encourages the Commission to refrain from implementing proscriptive resiliency-based rules, but rather consider setting forth guidelines for wireless carriers and include guidelines that apply to electric utilities' duties and obligations to maintain commercial power to telecommunications networks and to limit any unavoidable disruption. Sprint suggests bringing all stakeholders together (including the electric utilities), in a workshop or collaborative forum, to develop a comprehensive concept of resiliency that is a basis

for broader-industry guidelines. This approach permits the replication of these developed “best practices” for use in other areas where commercial power shutdown is necessary due to catastrophic or power grid overload events.

Sprint supports the concept and definition of “Resiliency” as discussed in CTIA’s comments on the ACR and Proposal. This alternative proposed definition of Resiliency is the ability to prepare for anticipated hazards, adapt to changing conditions, and recover rapidly from disruptions in order to provide fundamental services to consumers and first responders before, during, and after emergency situations (*e.g.*, fires, earthquakes, floods, PSPS events, etc.) where it is reasonably possible in consideration of, among other things, strategic use of resources, safety and technological consideration, and the performance of third party vendors and partners. Key elements of resiliency, several of which involve third parties, include the following: dependable and secure commercial electricity; reliable backhaul; reasonable backup power capabilities; temporary facilities if needed; maintenance of comprehensive and flexible emergency response plans; coordination with CalOES, electric utilities, and other stakeholders; ability of consumers to contact carrier and government agencies; and reasonable cooperation among carriers.

The ACR aptly acknowledges that wireless communications networks vary greatly among providers and also within individual carrier’s networks. These variations must also be considered by the Commission as it contemplates creating resiliency guidelines. Wireless telecommunications networks include a combination of microcells, microcells, distributed antenna systems, nodes, switches and many other facilities, which evolve and change as technology advances. Some antenna sites are

collocated on poles, some are on rooftops, others are in public rights of way, and yet others have equipment vaulted underground. In many instances wireless site compounds lack the physical space to accommodate various resiliency measures such as fixed generators or extended banks of backup batteries. Many rooftops not only lack space, but do not have the structural support to safely permit the placement of a generator. Other sites, such as those in the public right of way, cannot accommodate a generator or backup batteries, without unduly encumbering ingress and egress. In other instances, the wireless carrier may not have the right under the terms of the lease agreement to install a generator without an amendment, which the landlord may be unwilling to execute. Many jurisdictions require a conditional use permit, and other discretionary approvals, for the placement and operation of a generator, often lengthy processes with uncertain outcomes. The ACR also acknowledges that other regulatory agencies have jurisdiction over the placement and operation of network resiliency tools such as generators and batteries, including but not limited to the California Air Resources board, building department safety rules and regulations, local fire codes, wetlands and coastal commission rules, among others. The topic of resiliency, as acknowledged in the ACR is highly complex.

Sprint takes into account these complexities when determining the appropriate method and means for hardening its network facilities. When considering resiliency concepts, Sprint's objective is to maintain service coverage to the greatest extent possible and to restore service as quickly as possible in the event of a service disruption. Sprint looks to past emergency events such as wildfires, hurricanes, floods and now PSPS events, as it considers the most efficient ways to help its network

weather these types of emergencies and to be poised for a fast and effective recovery from network outages.

The ACR, however, suggests that network resiliency is premised on network facilities withstanding emergency or disaster events without experiencing service disruptions. In the definition posed in Appendix A, resiliency means, "...the ability to recover from or adjust *easily* to adversity or change... (emphasis added)."³ Sprint is concerned with each of these definitions. In particular, resiliency measures such as generator placement, or a massive bank of batteries on site, are of no benefit in certain circumstances. Recovery and ability to lessen service impacts through leveraging neighboring sites, developing engineering solutions that respond to the specific circumstances, coordinating with other telecommunications and electric service providers to implement interim and long term solutions, deploying Cells on Wheels ("COWs"), Satellite Cells on Light Trucks ("SatCOLTs") and other mitigation efforts provide pointed and meaningful solutions for network restoral. These are not easy answers, but rather, represent highly coordinated, detailed and designed responses, reacting to the specific type of network damage or impact created by an emergency event.

Because we cannot predict nor can we possibly build wireless networks to withstand every type of emergency, the concept of what makes a resilient wireless network has to be flexible by definition. For example, it might include such items as developing emergency response plans that incorporate deployment of COWs and SatCOLTs as appropriate and collaborating with emergency services agencies.

³ See R.18-03-011, *Assigned Commissioner's Ruling and Proposals*, dated March 6, 2020, Appendix A at 2.

4. Backup Power Requirement: The Proposal recommends that all Providers have: on-site emergency backup power to support all essential communications equipment including but not limited to, switching centers, central offices, wire centers, head ends, network nodes, field cabinets, remote terminals, and cellular sites (or their functional equivalents) necessary to maintain service for a minimum of 72 hours. Service must be sufficient to maintain access to 9-1-1 service, to receive emergency notifications, and to access web browsing for emergency notices.

(a) Please provide comments on the proposed backup power requirement.

Requiring a minimum of 72 hours of backup power at all essential communications equipment locations is not necessary, not feasible and in most instances is not possible. As discussed in Response to Question 3 above, many of Sprint's cell sites cannot accommodate a fixed generator. Even those that have fixed generators, have average onsite fuel capacities of 48-72 hour run periods before needing to be refueled. Portable generators typically have a fuel tank capacity capable of 24-48 hour run times. Sprint leasehold areas often do not include sufficient space to accommodate a generator, nor the right to operate a generator on premises. Backup batteries are an equally untenable means to meet the proposed 72 hours of backup power requirement. For example, it would take 25 cabinets that are roughly 3'x3' in dimension, each with 5 strings of batteries consisting of 4 block batteries in each string (20 battery cells/cabinet) to provide roughly 72 hours of back up battery power to support just Sprint's cell site equipment. In addition to the space issues, there are environmental or code restrictions that impact how much fuel and potentially how many batteries are permitted on premises. Not only is the proposed 72 hour backup

power requirement untenable and logistically impossible in most cases, it is also an arbitrary and unnecessary requirement.

Sprint's network has backup power at most macrocell sites and all switches. As discussed in Sprint's response to Question 3 above, some sites cannot accommodate battery and/or generator backup power options. The design rationale for onsite battery backup power is to supply a necessary power alternative in instances of brief disruptions in commercial power. Cell sites were not engineered or designed to operate independent from the electric grid. Following the unprecedented and large-scale power outages triggered by the October 2019 PSPS events, Sprint now stores a large fleet of portable generators in multiple locations in California to ensure rapid and timely deployment. Accordingly, it is unnecessary for the Commission to proscriptively require on-site backup power of any duration, because with sufficient advanced notice in the event of a PSPS outage, Sprint can deploy assets and make adjustments to its network to limit or avoid service interruptions.

(b) How should "outage" be defined?

The Commission should define a wireless "outage" as a "service outage" consistent with the definition developed by and reflected in the Cal OES proposed outage regulations, pursuant to the SB 670 legislative mandate. The Cal OES definition of an outage resulting in a community isolation event is a wireless service outage that last for 30 minutes or longer and impacts 50% or more of a single service zip code. This definition of outage far more accurately reflects the geographic impact of a service outage than reporting on specific cell site outages, as is communicated to the FCC in the National Outage Reporting System ("NORS") reports. When a cell site

is off-line, it does not necessarily impact a wireless carriers' service. Some cell sites are added to networks to increase capacity, to assist with inbuilding penetration and assist with small coverage gaps attributable to man-made or naturally occurring impediments such as buildings, tunnels, or hills. Temporary loss of these sites may lead to little or no coverage impacts. Additionally, wireless networks are designed so that sites provide overlapping coverage. This permits signals to hand-off from one site to the next and the loss of site does not result in a loss of coverage for the entire area. In cases where a high priority site goes down, such as in the case of a fire, and the site cannot be rebuilt for an extended period of time, in some cases the propagation of the signals from the neighboring sites can be adjusted to cover a majority of the geographic footprint previously covered by the site that was burned.

Sprint urges the Commission strive for consistency in the definition of an "outage" not only among its various proceedings that are considering network resiliency concepts, but also with the other rules being developed by Cal OES. Without a consistent definition, the information sought and provided to various agencies will lead to confusion regarding network outage impacts and how to understand and assess wireless carrier mitigation efforts. Having a consistent language between the CPUC, Cal OES and other stakeholders necessitates uniform terminology.

- (c) *Should the length of the 72 hour backup power requirement be shorter, longer or indefinite? Please provide an analysis to support your recommendation.*

Pursuant to the explanations set forth in Sprint's response to Question 4(b) above, 72 hours of on-site backup power is unreasonable, untenable, arbitrary, unnecessary and in many instances impossible to accomplish. In many cases there is not enough

space, no legal right to access and incumber the space, as well as land use, environmental and operational constraints standing in the way of providing such extensive backup power. Instead, the Commission should refrain from imposing a prescriptive rule, and instead should allow wireless telecommunications carriers to determine, based on their network designs, emergency response plans and protocols, and how to maintain resiliency. It is also important to recognize that if a site is destroyed in a fire, under water in a flood or swept away in a mudslide, no amount of backup power will keep the site on-line. In other cases, sites go down due to other intervening events such as loss of backhaul (provided by a transport provider). Wireless carriers need the agility to respond to circumstances at hand and deploy appropriate and tailored tools and mitigation measures.

(d) What other backup power requirements or components should the Commission consider? Please provide an analysis to support your discussion of any additional requirements or components.

5. Backup Power Plans: The Proposal recommends that Providers file a Backup Power Plan with the Commission six months from the effective date of an adopted Commission decision with an array of requirements that illustrate the Provider's preparedness to ensure 9-1-1 access, ability to receive emergency notifications, and access web browsing for 100 percent of customers in the event of a commercial power outage.

Sprint strives to respond timely and efficiently to resolve network impacts in the wake of an emergency event. As a threshold matter, in Question 5 above, the CPUC qualified the development of a Backup Power Plan, "...to ensure 9-1-1 access, ability to receive emergency notifications, and web browsing for 100 percent of customers in the event of a commercial power

outage.” Sprint objects to the Commission’s representation that the Backup Power Plan is insufficient if it does not ensure that 100 percent of customers will have 9-1-1 access and web browsing capabilities. Even when commercial power is readily available, Sprint cannot guarantee service to 100 percent of customers at a given time. No wireless carrier provides seamless and complete service coverage to every portion of California. Sites are regularly being repaired, upgraded, and maintained. Accordingly, Sprint respectfully requests that the Commission does not impose an expectation, let alone a requirement, that is not feasible or possible to attain.

Certain proposed criteria are problematic and call for information that Sprint does not possess in its ordinary course of business, overly burdensome to obtain, and will provide the CPUC with little insight regarding Sprint’s preparedness for responding to emergency events that involve the loss of commercial power. The Commission asserts that the Backup Power Plans should include detailed PSPS and grid outage response plans. The electric utilities are better suited to provide grid outage response plans. Sprint does not have access to or control over the type of electric grid information necessary to develop such a plan. Sprint is willing to share with the Commission some of the confidential Backup Power Plan information sought in the Proposal, such as how many facilities are equipped with fixed generators, the number of portable generators stationed in CA and the number of COWs and SatCOLTs that Sprint owns and deploys in suitable circumstances, provided the information is afforded confidential treatment. Sprint also maintains inventory to replace damaged equipment or functionality at. In some instances, however, Sprint is unable to implement these resources due to access restrictions or safety concerns. Sprint is willing to provide the Commission with general information regarding contracted refueling vendors, information on roaming agreements to the extent that the agreements are not prohibited from disclosure due to confidentiality provisions, and Sprint’s Network Service Manager point of

contact to communicate with Cal OES.

Sprint supports the CPUC's interest in understanding the various tools, engineering resources, collaborative industry solutions and other mechanisms available to assist with not only restoring power to its sites, but with respect to other needed restoration depending on the circumstances. Requiring the type of detailed information such as refueling schedules, copies of roaming agreements and specific data regarding what type of backup power is available at each site within Sprint's network is unnecessary to achieve that goal, seeks information that either does not exist, that is not captured and maintained in the ordinary course of business or is overly broad and burdensome to produce. Sprint contracts with third parties for refueling and to maintain fuel levels necessary to operate the facility for the duration of the outage. With respect to the CPUC's request for copies of confidential roaming agreements, it suggests providing the Commission with summaries of the portions of those agreements that pertain to accommodating another carrier's traffic in emergency circumstances. As noted above, Sprint is willing to provide good faith estimates of which sites have battery backup and mobile generator hookups. Some sites, such as those on rooftop locations or pursuant to landlord restrictions do not have mobile generator hookups. Battery theft is an industry-wide problem, thereby posing a challenge to accurately inform the Commission regarding the status of battery backup at sites. Sprint encourages the Commission to seek Backup Power Plan information that is more narrowly tailored and would not require wireless carriers to undertake an expensive, time-consuming audit of all of its facilities to ensure the degree of accuracy that the Proposal appears to contemplate.

- (a) Clean Energy Generation: The Proposal directs Providers to utilize clean energy backup power options (*e.g.*, solar, *etc.*) as reasonable before using diesel generators to meet the backup power requirement, among other provisions.

Sprint has and continues to explore clean energy solutions for providing backup power to its cell sites. Over the years, Sprint has undertaken initiatives to deploy hydrogen fuel cells at select sites. Sprint experienced a number of challenges with deploying and maintain the hydrogen fuel cells as a backup power solution such as a lack of refueling infrastructure, building codes that do not address hydrogen fuel cell installation and operation, and fire personnel unfamiliar with the technology, as well as and the high capital cost of the Hydrogen Fuel Cell (HFC) compared to incumbent backup power solutions. Even today, the clean energy industry has yet to develop alternatives to batteries and to traditional fossil fueled generators that are cost-effective, meet cell site size constraints, provide increased duration of energy, and are manufactured on the scale necessary for broad deployment. Despite this reality, Sprint is in full support of continued testing and review of clean energy alternatives as they are developed. As the clean energy industry advances, Sprint expects that it will, in the future, engineer the type of battery alternatives (fuel cell or otherwise), solar, thermal, wind-based and others that will provide cost effective options that are appropriately sized for network deployment. In the meantime, this type of requirement is not practical or feasible.

Please provide comments and analysis on this issue, and specifically address the following:

i. How should “clean energy backup” be defined?

Sprint defers to appropriate energy subject matter experts to define the term “clean energy backup power”.

ii. Provide specific information on barriers to procuring specific types of clean

energy backup power (e.g., cost, permitting, etc.).

Please see Sprint's response to Question 5(a), above.

(b) *Waivers: The Proposal directs Providers to submit waivers if they qualify for any of the exemptions enumerated in the Proposal. Please provide comments and analysis on this issue.*

Sprint is unclear how the waiver process contemplated in the Proposal would operate. The Proposal permits a waiver from the rule when facilities are not required to maintain "overall consumer access to 9-1-1, as well as the ability to receive emergency notifications and access web browsing for emergency notices" and where safety considerations or other laws preclude the use of backup power.

The Proposal, however, does not specifically call for backup power at every facility, rather it directs wireless carriers to maintain "overall consumer access to 9-1-1, as well as the ability to receive emergency notifications and access web browsing for emergency notices". Facilities that meet this directive should not require a waiver, when they are not covered by the proposed rule. Similarly, Sprint is unclear why it would have to qualify for an exemption from a CPUC rule when compliance with the Commission rule that would otherwise require Sprint to act in conflict with other laws.

Sprint supports the idea of a waiver that can be applied in a flexible way, in the circumstances when facilities that are covered by the lawful application of the rule are unable to comply. In such circumstances, waiver should be available to fully address feasibility issues, for example, but not limited to: lack of space; lack of landlord consent; structural limitations; lack of necessary approvals and entitlements; and other

similar constraints beyond a wireless carriers' control.

- (c) *Critical Facility Location Information Sharing: The Proposal directs Providers to share critical facility location information to emergency responders to enhance the ability to defend vital facilities against wildfire damage and ensure facility redundancy. Please provide comments and analysis on this issue.*

Due to significant national security concerns, and the ever-present threat of terrorist and hacking threats and attacks that could cripple large portions of its network operations, Sprint goes to great lengths to ensure that its network location information is kept confidential. Accordingly, Sprint does not support a general requirement to share this highly confidential information, except on a very limited basis, and only in response to and in accordance with the needs presented under circumstances of the emergency event at hand. Sprint opposes sharing the location of its confidential network location information on a broader basis than what it has outlined above.

Sprint has implemented accelerated preventative maintenance measures in California to make certain cell sites and facilities less susceptible to fire damage. In 2019, in collaboration with PG&E, Sprint identified 18 sites that were at higher risk of damage from a wildfire and that warrant additional mitigation measures to help protect Sprint's network equipment should a fire burn through the area where its network facilities are located. The mitigation efforts, which concluded in late 2019, included vegetation clean-up and application of fire-retardant paint for fences and buildings within the leasehold area.

Cal OES is developing outage reporting rules, whereby wireless carriers will be reporting to Cal OES service outages that result in community isolation. Cal OES will

use this information to be able to identify communities that are subject to limited communications and build to notification and evacuation plans based on that information. To the extent that the Commission is purporting to seek critical facility location information in order to address communications outages in vulnerable communities, Sprint suggests that the Cal OES reporting structure will already ensure that such vital information is in the hands of the state agency best equipped to react and to coordinate efforts with other emergency response teams.

(d) *Critical Infrastructure Resiliency, Hardening and Location Information Sharing: The Proposal directs Providers to annually submit geographic information system (GIS) information with the specific location of network facilities and backhaul routes to the Commission. The Proposal directs Commission staff to analyze and process this information, so it is accessible to state and local emergency responders, subject to confidentiality requirements. Please provide comments and analysis on these proposed directives.*

The Proposal directs wireless carriers to submit specific location information for all network facilities and backhaul routes to the CPUC on an annual basis. Sprint does not collect nor can it produce the extensive, detailed and specific GIS backhaul route information as purportedly required in the Proposal.

When Sprint designs and upgrades its network facilities, it does so with network resiliency in mind. In fact, Sprint has invested over \$5 billion dollars in national capital expenditures over the past few years⁴, which includes substantial expenditures

⁴ See RCR Wireless.com, "Sprint CTO highlights investments in small cells, massive MIMO and more," by Sean Kinney, dated December 19, 2018.

to improve its infrastructure in California. This national investment has gone toward enhancing coverage, capacity, network reliability, resiliency, and redundancy. By adding cell sites and thereby expanding Sprint's coverage footprint in various areas and densifying its network in other areas by providing greater overlap between cell sites, often allowing neighboring sites to compensate for sites that are inoperative following a disaster; upgrading facilities and equipment, thus making the network more efficient and capable of handling larger volumes of traffic; increasing fiber deployments for more reliable backhaul and to lessen microwave dependencies (Sprint has converted over 4,249 sites from microwave to fiber backhaul); upgrading existing equipment to leverage multiple spectrum bands; adding macro cell site installations and initial 5G equipment deployment activities; adding antenna Remote Electronic Tilts ("RETs") that allow for real-time adjustments to antenna direction, coverage span and propagation for network optimization or to prevent interference with Cells on Wheels ("COWs") and Satellite Cells on Light Trucks ("SatColts"), or to otherwise respond to site outages; diversifying fuel vendors to increase availability and reliability of refueling services for Sprint's fixed and mobile backup generators; purchasing additional backup generators; and purchasing additional COWs and SatColts to increase Sprint's national fleet, which is ready for deployment in response to disasters (collectively, "network enhancement activities"), Sprint has taken meaningful strides toward improving network resiliency.

Such enhancement measures have made Sprint's wireless network less susceptible to large-scale impacts resulting from natural disasters and have increased network resiliency by generally enabling a more rapid response to mitigate the duration of cell

site outages. These investments also provide flexibility and offer varied tools at Sprint's disposal; this agility is necessary in order to react to a wide array of natural disasters and to account for and respond to the surrounding conditions.

The proposal directs wireless carriers to provide network facility location information so the Commission may analyze the information and coordinate with emergency responders in order to identify locations in California where additional network hardening is required. Sprint suggests that the network enhancement activities and resiliency measures discussed above, provide far more meaningful insight regarding Sprint's network's ability to respond to and recover from an emergency event. Sprint's network design, radio frequency engineers, and emergency response teams have the expertise and experience necessary to analyze network impacts, to determine the most appropriate resiliency and hardening measures for various network components, and to implement measures and protocols to restore service in the wake of an emergency. Not only is this a complicated undertaking, but facility location information is insufficient in and of itself for the Commission staff to make resiliency conclusions. This information is equally limited for use by emergency responders. It would be far more effective to have state and local emergency response organizations coordinate with Cal OES to obtain meaningful network outage, remediation and restoral information that is provided by the wireless carriers on a nearly real-time basis during emergency events.

6. Emergency Operations Plans: The Proposal directs Providers to file emergency operations plans with the Commission, discussing how their operations are prepared to respond to emergencies.

Please provide comments and analysis on this issue.

Sprint does not object to providing the Commission with a copy of its Emergency Operations Plan (“EOP”) on an annual basis.

(a) *Additionally, the Proposal itemizes required content that the Providers must submit to the Commission. Please provide comments and analysis on this issue.*

Sprint agrees that all personnel involved in emergency response activities should be familiar with the contents of the EOP, are trained on putting the EOP into operation and committed to follow the plan, except where the circumstances of the emergency event warrant deviation. Sprint will provide the requested emergency contact information and will notify the CPUC’s Communications Division Director of changes in emergency contacts or material modifications to the EOP made mid-year. Sprint also supports providing contact information for individuals who will represent Sprint at the State Operations Center (“SOC”), as liaisons who can ensure around the clock presence at the SOC during emergency response events. Sprint trains its emergency response team personnel in accordance with the Standardized Emergency Management System (“SEMS”), they are familiar with Sprint’s network operations and procedures, will coordinate closely with the other Sprint teams engaged emergency response activities and will have access to appropriate Sprint team leads or be otherwise enabled and empowered to address and respond to questions and issues that arise at the SOC. Sprint supports a limited dissemination of its EOPs during emergency events to those emergency response organizations involved in emergency event, however, it does not support broad dissemination of its EOPs in non-emergency situations to state and local emergency response organizations. Sprints EOP is proprietary and should be shared in emergency situations with only those groups who have a critical need to know and

understand Sprint's emergency operations procedures.

Emergency Contact Information

Please see Sprint's comments above, indicating support for the emergency contact proposal included in the ACR.

Emergency Preparedness Exercises

Sprint trains its emergency response team personnel in procedures and processes related to implementing its Emergency Plan. Part of the training includes holding annual emergency preparedness exercises and activities for both Sprint's emergency response personnel and its vendors who play a vital role in network response and recovery functions during emergency events. These exercises serve as tests to ensure a proper process flow and to identify areas of improvement. During these exercises, Sprint reviews the tools and systems that supply support during disaster events, including tracking or recon activity and portable generator tracking. Sprint conducts a full tabletop exercises involving coordination among all teams that have a role or function during an emergency event. Following the emergency exercises, Sprint conducts a complete analysis and review – an "After Action Review", to identify opportunities for improvement.

In addition to Sprint's independent preparedness exercises, it also trains with local, state, federal Department of Defense, tribal, enterprise, healthcare, education, volunteer and other agencies. These external training exercises inform Sprint how to best collaborate with other groups' emergency operations, what communications channels to utilize and how to best meet their specific needs.

Public Communications Plan

Sprint actively communicates with its customers in the event of an emergency through multiple channels, including but not limited to information postings on its websites, text messages and emails. Sprint also communicates with customers via social media accounts, through the press and other media outlets, local, county and state officials and public safety agencies, during emergencies.

The Proposal, however, requires wireless carriers to post an outage map, a description of anticipated outage impacts and restoral time frame information. Sprint does not have such a tool. Sprint provides customers with coverage information, in a mapping format, that depicts Sprints general service coverage, under normal circumstances. This is not a tool to communicate network restoral information. Moreover, Sprint has national security concerns with making its network facility location and status information publicly available. Telecommunications networks are critical infrastructure, therefore the sharing of this highly confidential and proprietary information in a public portal would pose unnecessary risk to national security.

Communication with State and Local Emergency Responders

The Proposal directs wireless communications providers to share detailed information with state and local emergency responders, at specified intervals, regarding network impacts created during an emergency. Sprint urges the Commission to support a singular flow of detailed information between the wireless providers and Cal OES. Cal OES, through the rules that it is developing in pursuant to SB 670, is requiring wireless carriers to provide detailed information regarding any service outage lasting for 30 minutes or longer and affecting 50% or more of a zip code. The Cal OES rules establish reporting intervals and other requirements developed to ensure that

Cal OES has the information that it needs. It would be more efficient if other state and local emergency responders directly involved in the emergency at hand, could receive appropriately relevant information through Cal OES, rather than through multiple contacts with each wireless provider. Currently, wireless carriers receive inquiries from multiple local, county and state agencies, which often strains resources when the wireless carriers are handling emergency response activities, focusing on network restoral efforts and communicating copiously with Cal OES. A single channel of communication would allow the wireless carriers to more quickly respond to the emergency at hand.

(b) Should the proposed rule for Emergency Operations Plans include any other information that the Proposal does not address? Please explain why any additional information is legitimate and necessary for adoption.

7. Current Mitigation Efforts: in response to this ruling, allrespondent communications service providers shall provide a discussion of what current mitigation efforts they are undertaking to ensure continuity of service in preparation and in advance of the upcoming 2020 wildfire and grid outage season. This should include, but is not limited to, the following topics:

(a) Number of additional generators acquired (both fixed and mobile);

Sprint has doubled the number of portable generators that it stores in California. It created a plan to pro-actively deploy portable generators to certain high priority sites in locations prone to PSPS events, prior to the start of the fire season. Other generators are moved to staging areas, to assist with rapid deployment. Sprint has also initiated a program to run monthly exercises on its portable generator fleet as they await deployment. In anticipation of the need for other generator services and support,

Sprint has identified new suppliers to assist with fueling and maintenance work as well as secured rental agreements for additional portable generators should the need arise.

Sprint does not have further updates regarding the number of fixed and portable generators that it reported to the CPUC in its letter response to President Batjer's November 13, 2019 "Letter to Communications Leaders" regarding the October 2019 Wildfire and PSPS Network Impacts.

(b) Number of additional temporary facilities acquired (e.g., COWs, COLTs, etc.);

Sprint has relocated 13 COWs to California, that were previously in use outside of California. Sprint does not have further updates regarding the number of fixed and portable generators that it reported to the CPUC in its letter response to President Batjer's November 13, 2019 "Letter to Communications Leaders" regarding the October 2019 Wildfire and PSPS Network Impacts.

(c) Additional network redundancy built into network (e.g., logical and physical);

Sprint does not have further updates regarding the number of fixed and portable generators that it reported to the CPUC in its letter response to President Batjer's November 13, 2019 "Letter to Communications Leaders" regarding the October 2019 Wildfire and PSPS Network Impacts.

(d) Provide details on plans in the near, intermediate and long term to further harden facilities;

Please see response to Question 7(c) above.

(e) Identify barriers to building resiliency into your networks;

Barriers to building resiliency in Sprint's network include but are not limited to

local jurisdiction regulations and restrictions, space limitations, landlord issues and terrain constraints.

- (f) *Identify any other investments or cooperative agreements that will be made to build in more backup generation or minimize the need for backup generation; and*

Sprint supports the idea of wireless carriers coordinating efforts to share backup power access in certain circumstances. In the case of collocations where there is enough space at the site for a generator that is large enough and has an ample fuel supply that is sufficient to support two carriers' equipment, then Sprint supports coordination and sharing of backup power resources (as well as maintenance activities) when logistically and economically feasible. Although this is not a solution to expanding backup power support to a majority of macrocell sites, it may be an efficient option for certain collocations. Sprint also recognizes, that the generator must be sufficiently sized to support the power needs of both carriers' network equipment. This type of collaboration occurring early in the process, at the macrocell site design phase, may minimize the need for supplemental backup power generation and to resolve physical limitations otherwise preventing the placement of multiple generators at some cell site locations.

Following the Superstorm Sandy disaster in 2012, the Wireless industry came together and created a working agreement that affords mutual assistance during large-scale emergencies. As discussed in CTIA's comments on this Proposal, The Wireless Network Resiliency Cooperative Framework has enabled wireless carriers to help one

another, and in some cases, to share resources in response to emergencies.⁵ This type of cooperation encourages an efficient use of limited resources during emergencies.

(g) *Identify if communications service outages as a result of future public safety power shutoff events are expected. Identify specific locations and reasons where network outages are expected.*

Provided Sprint receives ample notice of an impending PSPS event from the electric utility and further assuming that the electric utility affords accurate information regarding the geographic area subject to the de-energization event, Sprint expects to be able to implement mitigation measures by deploying portable generators and other network support to significantly limit and potentially avoid network service disruptions. Sprint has not identified any specific macrocell locations that it believes are particularly vulnerable to a PSPS event.

8. Other Topics for Commission Consideration: Parties may identify issues in addition to the proposed rules and discussion in the Proposal.

Carriers seeking to install generators at cell sites often face permitting and entitlement hurdles. Having a streamlined permitting process for the installation of permanent generators that bypasses these regulatory hurdles and restrictions would assist with faster deployment, in the cases where the carriers deem permanent generators as appropriate backup power solutions.

⁵ See CTIA, “Wireless Network Resiliency Cooperative Framework,” <https://www.ctia.org/the-wireless-industry/industry-commitments/wireless-network-resiliency-cooperative-framework>.

III. CONCLUSION

In accordance with the Commission's directive to provide responses to and discuss the questions set forth in the ACR and Proposal, Sprint respectfully submits these comments for the Commission's consideration.

Respectfully submitted,

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