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COMMENTS OF CELLCO PARTNERSHIP (U 3001 C) AND MCIMETRO ACCESS TRANSMISSION SERVICES CORP. (U 5253 C) ("VERIZON") ON ASSIGNED COMMISSIONER'S RULING AND PROPOSAL [PUBLIC VERSION]

Jesús G. Román
Verizon
15505 Sand Canyon Avenue
Irvine, CA 92618
Tel: (949) 286-7202
E-mail: jesus.g.roman@verizon.com

Jane Whang
Verizon
201 Spear St. 7th Floor
San Francisco, CA 94105
Tel: (415) 778-1022
E-mail: jane.whang@verizon.com

Attorneys for Verizon

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Cellco Partnership (U 3001 C) and MCImetro Access Transmission Services Corp. (U 5253 C) (collectively, "Verizon") respectfully submit these comments to the March 6, 2020 Assigned Commissioner's Ruling and Proposal ("ACR").

I. INTRODUCTION AND SUMMARY

Verizon welcomes the opportunity to work with the Commission to develop a record for the purpose of crafting reasonable, feasible, workable and lawful standards, along with identifying best practices for "maintaining resilient and dependable communications networks," consistent with the goals articulated in the Assigned Commissioner Ruling and Proposal attached as Exhibit A to the ACR (the "ACR Proposal"). The ACR Proposal, however, includes a number of suggested technical standards and requirements that would be imposed on virtually all facilities without regard to whether doing so is reasonable or even feasible. These proposed requirements were issued without the benefit of technical workshops, which could have raised and addressed various complex issues. The ACR Proposal should not and cannot be adopted at this time as a strict mandate.[1] Verizon recommends that the Commission continue to develop the record on these highly technical and complex issues through focused workshops, consistent with longstanding Commission

[1] For example, the Proposal has an ambiguous 72-hour minimum backup power at each site. If this requirement is read to mean literally the deployment of backup power to each site to keep a facility on-air for 72 hours on a single tank of fuel, then it is not possible to meet the ACR's goal of implementing this resiliency measure by the Summer of 2020, or in fact, by any date.

practice, and instead of strict rules, consider issuing standards and best practices that carriers could adopt.[2]

Specifically, although aspects of the ACR Proposal provide a good starting point for discussion, other aspects are not workable or feasible as written and require clarification and potential reassessment. The design, building, and operation of a communications network is extremely complicated and different for each provider, and workshops could address the many practical issues raised by the ACR Proposal. In the absence of workshops, the proposed requirements would not be legally or practically enforceable as they lack sufficient record support.[3]

There is also no record evidence to support the ACR's broad statement that "emergency calls and notifications often fail" during disasters.[4] At best it is a truism, since network outages necessarily may affect all communications, emergency and non-emergency alike. During any natural disaster, even the most "hardened" structures may be subject to destruction; however, impact to parts of a network does not mean that all calls and notifications fail. To the contrary, the communications industry has successfully maintained and/or restored its network for the majority of

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[2] The Commission's standing practice has been to hold technical workshops on highly technical issues. For example, the Commission held workshops to develop construction standards for pole attachments (General Order 95), and is currently holding workshops to develop rules related to pole databases (I.17-06-027). The Commission's "workshop" held in November 2018 in this proceeding did not have experts from the communications industry on any panels, nor was there the type of discussion and engagement on technical issues that are typically had in technical workshops.

[3] The Proposal also raises jurisdictional issues that are discussed in CTIA's comments. Verizon supports those comments.

[4] ACR at 2.

customers even as it has faced unprecedented challenges, including natural disasters such as sweeping wildfires, electric utility public safety power shutoffs ("PSPS") affecting wide swaths of the State, and increased demands on network capacity as large percentages of people shift to working and schooling from home during the current COVID-19 pandemic.[5]

Verizon in particular takes pride in the fact that its network is one that its customers and the public have been able to rely upon and that has been consistently recognized as best in class.[6] Throughout the wide-scale concurrent PSPS events and wildfires in October 2019, Verizon's network was operational for the vast majority of its customers even while our customers lost commercial power. We accomplished this through a variety of means, including robust backup power resources, overlapping cell site design, and design and maintenance best practices. We also have an emergency response team that runs to the crisis and deploys equipment and resources as

[5] Verizon has been reporting where there has been increased network usage on its website. https://www.verizon.com/about/news/how-americans-are-spending-their-time-temporary-new-normal. For example, in the week of March 19, total voice usage on Verizon networks increased 25% over the prior week, with the primary cause being conference call services. As of March 19, wireless voice usage increased 10%, call duration was up 15%, over the prior week. As of April 2, VPN traffic is up 40% over a typical day, Web traffic is up 24% over a typical day, video usage up by 33%, downloads increased by 27% over a typical day, and gaming by 102% over a typical day.

[6] In January 2020, Verizon received RootMetrics' overall network performance award for a record 13th consecutive time: https://www.verizon.com/about/news/verizon-wins-rootmetrics-13th. In addition, for the 24th consecutive time, Verizon was named the number one provider to deliver the highest level of network quality in the J.D. Power 2020 Wireless Network Quality Performance Study℠. https://www.verizon.com/about/our-company/verizon-most-awarded-wireless-provider-jd-power-ever

necessary to local governments, first responders, impacted areas and relief organizations such as the Red Cross.[7]

The record also lacks adequate resolution of technical issues involving the ACR Proposal's backup power requirement, which is ambiguous and unless clarified, could dramatically delay or obstruct the deployment of small wireless facilities (also known as "small cells"). Small cells are used *both* to add capacity to existing 4G LTE wireless networks *and* to deploy new 5G services particularly those using millimeter wave technology. Indeed, applying a backup power requirement to small cells could significantly impede the deployment of 5G. A rigid backup power requirement could also impede the deployment of additional macro sites that are needed to expand coverage to new areas and to add capacity to existing areas, as explained below. Technical workshops would inform the Commission of this and other potential far-reaching ramifications of the proposed requirements, and so the Commission should proceed to schedule them at its earliest opportunity.

Given these concerns, Verizon provides the following comments to clarify the applicability of the backup power requirement and refine other aspects of the ACR Proposal. We recommend that the ACR Proposal be revised to set forth practical standards and guidelines (as opposed to strict requirements) so that providers can focus on the essential work of operating and maintaining their networks during

[7] See Response of Cellco Partnership (U 3001 C), MCImetro Access Transmission Services Corp. (U 5253 C) and XO Communications Services, LLC (U 5253 C) to Motion of the Public Advocates Office (June 19, 2019), at 1-3; Comments of Cellco Partnership d/b/a Verizon Wireless (U 3001 C) to Assigned Commissioner Ruling (August 29, 2019), at 1-2.

upcoming PSPS events, disasters, and other crises. Finally, consistent with the fact that the scope of the proceeding is focused on developing resilient networks "in areas that are prone to outage events and wildfires,"[8] Verizon recommends that any such guidelines be limited to High Fire Threat Districts Tiers 2 and 3.

Consistent with the directive in the ACR, these comments respond to the specific matters for which analysis is requested and in the order the ACR proposes.

II. COMMENTS AND ANALYSIS

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 carriers 9-1-1, voice, text messages, or data.*

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

    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?*

2. *Alternatively, D.19-08-025 defined communications service providers into the following categories: (1) facilities-based and non-facilities-based landline providers including 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, including resellers and mobile virtual network operators [MVNOs].*

    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?*

These questions seek analysis as to which communications service providers the proposed regulations should apply. The ACR Proposal contains various

[8] ACR at 2.

requirements, some of which relate to highly technical issues regarding the operation and maintenance of communications networks. Resellers or providers operating on other providers' networks have little to no responsibility or control over the operation and maintenance of network facilities, and therefore should not be subject to the proposed requirements regarding network operations. The Commission should ensure that the proposed prescriptions are properly calibrated to apply only to those entities that have the ability to implement them, which for some of the technical provisions would include those entities that actually own and operate communications network facilities, and not to any providers of resold services or leased network elements of other providers. In particular, wireless carriers tend to lease backhaul facilities or otherwise procure backhaul transport on a wholesale basis, and requirements around backhaul cannot fall on them.

Moreover, because providers have developed different policies in designing and deploying their wireless services, and different practices and processes in operating their networks, imposing a uniform set of requirements on a whole industry is unreasonable and may be infeasible for providers to implement. The Commission should consider setting forth a set of standards and guidelines, instead of absolute requirements, which allow for providers to operate their networks consistent with their unique network configurations.[9]

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[9] The absence of legal analysis in the ACR or Proposal results in proposed regulations that exceed the Commission's limited authority over wireless and other communications companies. For example, the Commission proposes rules that relate to network operational requirements and information services such as texting or data that are beyond the Commission's scope of authority. See, e.g., ACR at 5. CTIA's comments fulsomely address the Commission's limited authority over wireless carriers and Verizon joins those arguments.

3. <u>Definition of Resiliency</u>: *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.*

The ACR Proposal defines "resiliency" as including the "ability to recover from or adjust easily to adversity or change," and cites various strategies, including backup power; redundancy; hardening; temporary facilities; communication and coordination; and preparedness planning, as means for achieving that resiliency. But the Proposal appears to rest on the premise that implementation of the listed strategies will ensure a foolproof communications network that will never experience service disruption, no matter the magnitude of a natural disaster or PSPS event. Such a premise is faulty and unrealistic. To the extent that the Commission adopts any definition of resiliency, it should recognize that there are some *force majeure* or other large scale events that will cause service disruption, no matter how "resilient" the network. Moreover, any definition of "resiliency" should not result in hand-cuffing providers in how they achieve and maintain their networks' resiliency.

In this regard, Verizon has invested significant amounts in its network and continues to invest even more,[10] and in fact, utilizes the listed strategies in the ACR

[10] Verizon recently announced that it is *increasing* its nationwide capex guidance for 2020, outlining plans to spend an extra half $1 billion to speed its transition to 5G and prepare for a

Proposal's definition of "resiliency" (and other best practices) where feasible. During the major wildfires and PSPS events of October 2019, the majority of Verizon's network remained operational and running on backup power.[11] Moreover, even where cell sites do lose power, coverage in many areas is not always lost due to overlapping and adjacent cell sites that fill gaps in coverage. Despite the foregoing, however, the fact remains that there is no amount of preparation and hardening of a network that can prevent *all* service disruptions even in a business-as-usual environment (*e.g.*, as might occur when a third party's fiber is cut),[12] let alone in certain cataclysmic events, whether a wildfire or an earthquake that devastates vast areas, or even a widespread PSPS event that spans nearly half of the State.

The ACR Proposal refers to backup power as an element of resiliency. Verizon has a very high rate of fixed generators and batteries at its macro cell sites, probably the highest in the industry. We also have large generators and extensive batteries that fill large rooms at *all* of our mobile switching centers.[13] However, as discussed further below, some cell sites simply cannot accommodate batteries or generators due to space, technological, or regulatory, legal, zoning or other restrictions. For those sites

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potential surge in data traffic related to the spread of Covid-19 (coronavirus). It now expects capex of between $17.5 billion and $18.5 billion, up from an original range of $17 billion to $18 billion. https://www.mobileworldlive.com/featured-content/top-three/verizon-boosts-network-spend/

[11] See Verizon Letter dated November 18, 2019 to President Batjer, at 3.

[12] A communications network is based on mechanical equipment, much of which is outside plant, subject to multiple real world challenges, like fiber cuts, cars downing poles on which equipment is placed, vandalism, theft and malfunction.

[13] Attachment 1, Declaration of Fred Zhu, at ¶ 3.

where backup power is not feasible or practical, service coverage may or may not be lost when there is a loss of commercial power, depending on whether there are adjacent sites that can fill in the gaps in coverage.

Similarly, the ACR Proposal includes "temporary facilities," or deployable assets such as Cells on Wheels (COWs) or Cells on Light Trucks (COLTs) as elements of resiliency. Although Verizon uses deployable assets in situations where it is necessary to fill in coverage, deployable assets are not always a solution, and the ability for such temporary facilities to ensure service at all locations depends on multiple factors, including whether there is road access and available space, the terrain/topography, and regulatory, local, property owner, or other restrictions.

The ACR Proposal also refers to hardening and requiring that critical sites have "defensible space and are built to withstand natural disasters, including earthquakes." In coordination with and subject to the permission of the landlords of the property on which Verizon has its macro sites, Verizon clears its major cell sites of brush and vegetation as needed and encloses its generators and battery backup power in cabinets or shelters where it can, and of course, complies with California earthquake building codes.[14] Even so, during certain disasters, such as the wildfires that destroyed Paradise, our service was primarily affected not due to damage to our cell sites but because of the

[14] Verizon builds to the most current standards of the International Building Code (2009 IBC). We also base our performance on ASCE 31-03 – Seismic Evaluation of Existing Buildings. If local codes or amendments are more stringent than the 2009 IBC, Verizon applies those. Our sites are considered "essential facilities" and assigned a Seismic Importance Factor of 1.5, and we build to meet U.S. seismic zone 4 requirements.

destruction of poles and fiber that carry communications traffic from our cell sites to aggregation hubs[15] and switching centers.[16] Moreover, in a major wildfire, the entire cell site or a cabinet or other shelter housing backup power may still be subject to destruction, even if the area is cleared of brush.

Similarly, although Verizon strives to design and build our networks with redundancy (hence the overlapping nature of our design), there are limits and often a multitude of factors that may restrict or prevent our ability to build redundant facilities. These factors include state and local permitting challenges, community opposition, radiofrequency ("RF") siting challenges, terrain, space, and limited resources. The building of a single macro cell site is a complex, long-term project subject to discretionary local government zoning and planning processes that can often take years and encounter several delays and community opposition. On average, it takes approximately 3.7 years from the time that a need for a site is identified to the time that a macro-site goes "on-air" and can start transmitting wireless traffic, assuming the Planning Commission grants the Conditional Use Permit or the Coastal Commission grants a Coastal Development Permit or CalTrans grants permission. Thus, even while Verizon is constantly designing and building its network to be robust and for future demand, the process of building sites to meet that demand is laborious, costly, and challenging at every step of the way. Verizon would welcome the

[15] Aggregation hubs are those sites that aggregate traffic from multiple sites and deliver to a switching center.

[16] See Comments of Cellco Partnership d/b/a Verizon Wireless (U 3001 C) to Assigned Commissioner Ruling (August 29, 2019), at 5-6.

Commission's efforts to help address these barriers to entry and deployment, as the Federal Communications Commission has done.[17]

Finally, to the extent that proposed "logical and physical route diversity" means establishing two fiber routes to a site, Verizon builds two routes to its switching centers and major hubs. However, it is not always feasible to build diverse routes to our cell sites, as this often depends on the facilities available from third party wireline carriers (and the limits they face), location, available space, permitting and zoning restrictions, and other constraints. Further, in a catastrophic event such as a wildfire or earthquake, route diversity will be irrelevant when an entire area is damaged. And during a PSPS event, ensuring power is the main issue, not route diversity.

For the foregoing reasons, while Verizon does employ the strategies outlined in the ACR Proposal's definition of "resiliency," the Commission should acknowledge that some of these strategies may not be available for *every* network site, and that even when all strategies are incorporated, there is no guarantee that this ensures a 100% resilient network.

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 immediately following a power outage. Service must be sufficient to maintain access for all customers to 9-1-1 service, to receive emergency notifications, and to access web browsing for emergency notices.*

[17] *See, e.g.,* the FCC Infrastructure Order, FCC 18-133, In Re Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, WT Docket No. 17-79 (rel. September 27, 2018).

a. *Please provide comments on the proposed backup power requirement.*

b. *How should "outage" be defined?*

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

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.*

As Verizon has publicly stated, the operation of the communications network depends on the ability to keep its sites running during a power outage. Verizon keeps its network operational through a combination of "tools" or best practices that work together and were largely successful in keeping communications on-air during the widespread October 2019 power shut off events.[18] Backup power is one critical tool, and Verizon supports a requirement that communications companies deploy backup power to their facilities and key network coverage components where needed and feasible. There is no doubt that the Commission has a difficult challenge in providing its guidance on the appropriate level of backup power given all the different network configurations and network elements, especially because the Commission has not held any staff-led technical workshops to try to understand these matters.[19] There is

[18] At the height of the PSPS event on October 28, 2019, the wireless industry collectively reported approximately 57% of its cell sites out of service in Marin County; by comparison, ***only 8% of Verizon's cell sites were out of service in Marin County***. Comparisons in Sonoma and Napa Counties were similar: on October 28, ***only 7% and 2% of Verizon's cell sites were out of service in Sonoma and Napa Counties*** compared to 27% and 19% for the industry, respectively. See Attachment 1, Declaration of Fred Zhu at ¶17.

[19] The so-called workshop in Nov. 2018 was not a workshop to allow for open dialogue around the table like we have done in the GO 95 reform proceedings or even in the backup

little in the record to support the reasonability and feasibility of a one-size-fits-all 72 hour minimum backup power requirement. Such as a requirement would ignore not only the complexity of the various network designs but also the other tools or best practices that ensure resiliency; backup power is just one component, it is not a panacea. Instead of a strict backup power requirement, the Commission should consider adopting certain standards and best practices, including the following:

Deployment of Diesel Generators Where Feasible

While a backup power requirement is not necessary for all macro cell sites, Verizon's standard practice is to deploy diesel generators to all macro sites where feasible. Deploying diesel generators on roof tops, in certain rough topographies, or where localities have certain restrictions, such as low noise level restrictions, is generally not feasible. Because of fewer restrictions, Verizon's generator penetration rate tends to be larger in rural landscapes, with a high percentage of Verizon's macro cell sites having generators with backup power of 24 to 72 hours duration on a single tank of fuel in Tier 3 and Tier 2 High Fire Threat Districts. See Attachment 1, Declaration of Fred Zhu at ¶ 7.**Generator Monitoring with an Appropriate Refueling Cycle**

Verizon uses a real-time generator control and monitoring system of fixed generators in Tier 2 and Tier 3 high fire threat areas. We have adopted protocols to deploy refueling to "top off" generators when monitoring systems signal that fuel

power proceeding in 2007. Instead, it was an opportunity for public safety officials to express their needs and enumerate the items they see as promoting resiliency.

levels have reached less than 30% capacity.[20] The purpose is to ensure generators remain refueled and capable of providing backup power for the full duration of a PSPS event or an emergency.[21] See Attachment 1, Declaration of Fred Zhu at ¶ 13.

Automated Transfer Switches (ATS)

To mitigate against the loss of communications, where feasible, Verizon has deployed equipment that automatically switches during a loss of commercial power from commercial power to battery power to generator power at sites with permanent generators. The automatic transfer switches trigger immediately when commercial power is lost, defaulting first to the backup batteries and then to the diesel generator once these turn on, which they do automatically. From the loss of commercial power to the time the macro is operating on generator power is normally a matter of a few minutes. A picture of an ATS is attached as Exhibit B, of the Declaration of Fred Zhu.

Prepositioning of assets

Verizon prepositions fuel, portable generators and deployable communications equipment, such as Cells on Wheels (COWs), Cells on Light Trucks (COLTs), and Satellite Picocells on Trailers (SPOTs) near at-risk locations where an electric utility has notified there will be a public safety power shutoff. See Attachment 1, Declaration of Fred Zhu at ¶ 14.

[20] When an alarm goes off that fuel is reaching a predetermined level, an email and a call is generated that is routed to the technician in charge of the facility. If the technician fails to promptly resolve the alarm, she will get two more emails and calls. If she still does not resolve the alarm by refueling, her supervisor is then emailed and called.

[21] This practice may be subject to access obstacles during disaster events.

Established Fuel Agreements

Verizon has entered into contractual arrangements with fuel suppliers to have priority service. See Attachment 1, Declaration of Fred Zhu at ¶ 11.

Defensible Space Practices

Verizon generally clears (up to 30') and grooms (up to 100') brush around and within the leased area of macro cell sites in Tier 3 and Tier 2 high fire threat areas in coordination and with the permission of the landlord. See Attachment 1, Declaration of Fred Zhu at ¶ 15.

Use of Portable Generators

Verizon has a fleet of portable generators geographically dispersed throughout California. These are robust generators on a trailer (GOAT) that last in excess of 24 hours on a single tank. There are several sizes of GOATs but pictures of typical GOATs are attached to Exhibit C, of the Declaration of Fred Zhu.

Use of Quick-Connect Plugs, such as Appleton or CamLock plugs

A large number of Verizon's macro sites have connections to quickly plug in a portable generator. These plugs can be either Appleton or CamLock plugs. Pictures of an Appleton Plug cable and the plug location are attached as Exhibit A, of the Declaration of Fred Zhu. Regardless of Appleton or CamLock, we can and have hardwired in a portable generator as needed, as well.

Overlapping Network Design

Verizon generally designs its network such that during a power outage, we can modify antennas or otherwise make modifications quickly so that the impact of loss of coverage can be reduced and in some circumstances a neighboring operational cell

site will pick up the signal and keep service on-air. See Attachment 1, Declaration of Fred Zhu at ¶ 16.

Despite all of these best practices and Verizon's ability to maintain a resilient network, the ACR Proposal is problematic for the following reasons.

Ambiguity of Applicability of 72-hour Proposal

Turning to the ACR, it asks to comment on the length of the backup power requirement. But the requirement as proposed is unclear. The ACR Proposal states that all providers "shall have on-site emergency backup power to support all essential communications equipment" including "network nodes" and "cellular sites" to maintain service for a "minimum of 72 hours." The ACR Proposal also envisions providers seeking waivers from the backup power requirement for each "facility" or "class of facilities" that does not need 72-hours of backup power to maintain access to 9-1-1 and "access web browsing for emergency notices for 100 percent of customers."

It is unclear whether the 72-hour requirement is meant to require a generator that can operate for 72 hours on a single tank, or whether it recognizes that generators may be refueled and operate for as long as necessary. To the extent it is read to provide a minimum 72 hours of backup power allowing for refueling and other best practices, then as such it would not be unreasonable, so long as it is modified to exclude microcells, small cells and other locations where it is not feasible to deploy backup power.

Backup Power to Small Wireless Facilities is Not Feasible or Helpful

Small cells are generally deployed in the right of way on utility wood poles or street lights to add capacity to the 4G LTE network. When small cells are used for capacity, loss of power to them does not result in loss of communications.

Small cells deployed for the purposes of utilizing 5G millimeter wave technology, however, are deployed to provide coverage, not to add capacity. Further, older technology microcells (used for outside distributed antenna systems or oDAS) also provide coverage. And in certain discrete areas, some 4G LTE small cells are deployed for coverage purposes. Microcells and 4G LTE and 5G small cells used for coverage purposes are collectively discussed herein as small wireless facilities (or "SWFs"). The Commission should be aware that service could be lost to coverage-based SWFs during a power outage, if overlapping macros are not available.

Backup Power to SWFs is Not Feasible

SWFs are not designed with fixed or portable backup power solutions. Due to local codes designed to limit the number of facilities on a pole or above ground, battery installations are either prohibited or discouraged in the right of way.[22] Even

[22] For example, the ***City of San Diego*** has heightened requirements for above-ground equipment. See City of San Diego, Ch. Art. Div. 14, San Diego Municipal Code Chapter 14: General Regulations (11/2018) (§141.0420 Wireless Communication Facilities in areas described in Section 141.0420(f) may be permitted with a Conditional Use Permit . . . subject to the following regulations. . . [w]here any wireless communication facilities in the Right-of-Way with above-ground equipment must be approved through a heightened, discretionary Process 3); and has limitation on Pole-Mounted Equipment at §141.0420, such that "(g)(1) Wireless communication facilities shall utilize the smallest, least visually intrusive antennas, components and other necessary equipment" and "[a]ll equipment associated with wireless communication facilities shall be undergrounded, except for small service connection boxes or as permitted in Section 141.0420(e)(3)." See also, ***City of Coronado***; Administrative Procedure; Policy (3/4/19) (§6(f)vii. No more than four panel antennas or two omni-directional antennas shall be mounted on any utility pole or structure by any one provider; §6(f)(ix) All other (non-antenna)

where they have been allowed, like in Santa Rosa, resident opposition to the visual impact has resulted in the city requesting battery backup cabinets be removed, leaving the small cells without back power.[23] See Attachment 1, Declaration of Fred Zhu at ¶ 12. Indeed, if there were a backup power requirement for "all" cell sites, including SWFs, then practically speaking providers would have no option but to withdraw or not build SWFs in certain areas, leaving these communities without coverage or necessary added capacity even when there is not a power outage.

A 72-hour backup power requirement is infeasible for SWFs because they are located in the right of way where there is insufficient space to install the large number of batteries that would be needed to accommodate such a requirement. The same would apply to fixed generators for SWFs. Such large installations are not typically allowed in the right of way and are not practical.

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equipment associated with the facility shall be placed underground. If undergrounding is determined to be infeasible, all equipment should be setback at least 2.5 feet from the back of the curb and within the parkway or greenway or 2.5 feet back from the edge of sidewalk when it is contiguous to the curb (parentheticals added); ***City of Carlsbad***; Council Policy 64; Wireless Telecommunications Facilities (8/2018) (§ (C)3(c) (Non-antenna) (e)quipment shall be placed underground in discouraged locations. If it can be demonstrated that complete undergrounding of associated equipment is not possible, waiver requests involving landscaping or other screening techniques or visual mitigation will be considered (parentheticals added);

[23] See Verizon's 4G rollout paused in Santa Rosa amid public concerns, available at https://www.pressdemocrat.com/news/8023917-181/verizons-4g-rollout-paused-in?sba=AAS (Reporting and quoting city's chief information officer, Eric McHenry, as follows: "'I think we would have done a disservice to our residents not to have looked for a way to get battery backups for the network.' The city is exploring which locations may need backup power and whether the batteries, which were designed to run the small cells for up to four hours, need to be as large as they are, he said. No decisions have been made, but the company is 'bending over backwards' to work with the city on a solution, McHenry said."); *see also*, Santa Rosa continues 'pause' on Verizon small-cell project, available at https://www.pressdemocrat.com/news/8401923-181/santa-rosa-continues-pause-on (noting that "Following publicity of such complaints, Verizon removed the battery cabinet . . .").

Portable generators are also currently not a solution because SWFs do not have Appleton plugs, so portable generators cannot be easily attached to these SWFs. Portable generators can be *manually* attached to some SWFs, but that is the rare exception. Instead, Verizon's solution to the need for service during a power outage in these circumstances is to consider the use temporary deployables such as SPOTs or COWs where feasible and appropriate. See Attachment 1, Declaration of Fred Zhu, at ¶ 20.

There is one example in California that demonstrates the challenges even with the use of deployable assets. Through arrangements with Crown Castle, Verizon has **<<BEGIN CONFIDENTIAL>>** ■ **<<END CONFIDENTIAL>>** microcells in the Oakland Hills, in what is very restrictive topography. See Attachment 1, Declaration of Fred Zhu, at ¶ 21. The microcells are on wood utility poles, and backup batteries were not originally installed and could not be installed (then or now). Portable generators cannot be connected for the same topographical and technical reasons. Therefore, in the event of a PSPS in the area, our customers would lose and have lost service in the Oakland Hills during power outages. Deployable assets like COWs, COLTs or SPOTs would be our answer, but the roads are too narrow and these cannot be deployed in a manner that is safe for the community, as they would block traffic. In this case and in light of the "new normal" of PSPS events, Verizon is working with the city to find a feasible solution.

Backup Power to SWFs is Largely Not Helpful

Battery backup power solutions for SWFs would be of short duration (up to 4 hours) because of practical and legal restrictions. Deployment of backup power where

possible would be inadequate because major PSPS events and many disasters exceed four hours. Thus, even if a battery backup solution were allowed by local jurisdictions, that backup power would deplete quickly and not meaningfully help.

SWFs Should be Exempted from Backup Power Requirement

Adding capacity to the network using SWFs is critical to keeping the mobile broadband experience acceptable for consumers. Small wireless facilities are needed to meet the exploding demand for wireless data. The increased use of smartphones, tablets, health monitors and other wireless devices in everyday life relies on the wireless networks. In many places, this growing demand is congesting available capacity.[24] Wireless carriers can meet this growing demand with more spectrum, new technologies, and more cell sites. The FCC is working on making more spectrum available, and while new technologies are increasing efficiency, they are not doing so sufficiently to meet demand. The only way to meet customers' needs is to deploy more cell sites.

[24] Cisco reports that global mobile data traffic has grown 4,000-fold over the past 10 years and almost 400-million-fold over the past 15 years. In North America, just in 2015, mobile data traffic grew 55 percent. According to Cisco, there will be 29.3 billion networked devices by 2023, up from 18.4 billion in 2018. There will be 14.7 billion Machine-To-Machine (M2M) connections by 2023. Within the M2M connections category (which is also referred to as IoT), connected home applications will have the largest share and connected car will be the fastest growing application type. Connected home applications will have nearly half or 48 percent of M2M share by 2023 and Connected car applications will grow the fastest at 30 percent CAGR over the forecast period (2018–2023). By 2023, global mobile devices will grow from 8.8 billion in 2018 to 13.1 billion by 2023 – 1.4 billion of those will be 5G capable. Cisco Annual Internet Report (2018–2023), available at https://www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white-paper-c11-741490.html

Wireless carriers are facing a real challenge in keeping up with consumers' insatiable demands for mobile data, even during non-emergency or non-PSPS periods. During an emergency or PSPS event, network resources are even more constrained. In this regard, the ACR Proposal's focus on access to web browsing for emergency notices improperly prioritizes services that may congest the network and detract from delivery of critical 911 and voice calls. Verizon (and other carriers) have focused their resiliency plans on prioritizing the ability to make voice calls during disasters. A requirement that providers guarantee web access to 100% of customers during disasters cannot, as a technical matter, be limited to just browsing for emergency notices. Such a requirement thus effectively requires full web access at a time when the network is put to its biggest challenge where the overlapping nature of macro sites helps complete voice calls but where SWFs meant for capacity are not and should not be the focus. The 100% web access requirement also unrealistically contemplates that the network will operate perfectly during disasters and PSPS events, and that cannot be achieved. While Verizon understands the importance of subscribers receiving urgent notices, such as electric utility notices of PSPS that are linked to a website (and subscribers will generally indeed have access to web browsing), wireless networks are not always able to achieve the perfection implied by the 100% requirement.

This proposal also multiplies the already large challenge we have with capacity. The current COVID-19 crisis has put the capacity issue in sharp focus as stay at home

orders have resulted in increased use of communications networks.[25] Verizon has been tracking the increased use of its networks, and as of April 2, 2020, the increased use falls into the following categories:

Data usage type:	Increase compared to typical day	Growth rate change week over week, (peak hour usage)
Gaming	102%	1.6%
VPN	40%	4%
Video	33%	3%
Downloads	27%	-25%
Web	24%	Flat

As is clear, these significantly increased demands on the network will require greater capacity on wireless networks, which can be met by advanced technologies like 5G.

And critically, the deployment of the fifth generation of advanced wireless connectivity utilizing millimeter wave technology – what Verizon refers to as 5G Ultra Wideband service – depends in large part on the wide scale deployment of fiber-fed small cells. Unless it is clear that the backup power requirement does not apply to small cells, providers will be unable to comply with such a mandate and will be forced to stop deploying 5G in California at the scale currently envisioned. The technological advances unleashed by the power of 5G will be lost. Self-driving cars, remote surgery,

[25] See, supra, at fn. 6.

telemedicine, remote precision operation of critical manufacturing and other facilities, first responder training using Virtual Reality and Augmented Reality, Artificial Intelligence use cases, Internet of Things applications, all which depend on 5G for advancements to make them seamless and feasible, will be impacted unless it is clear that the ACR Proposal's backup power requirement is not meant to reach these facilities. And to be clear, 5G has already resulted in important advances to society. As just one example, Verizon has announced the ability of fire fighters to see through smoke using 5G technology.[26]

Backup Power Requirement Should Be Prospective

The resiliency framework the Commission adopts also needs to be sufficiently flexible to account for the many years of network deployment under existing rules. Carriers like Verizon that have been fulsomely deploying generators for over three decades should not be required to replace those generators to meet a new 72-hour minimum on a single tank standard for at least two reasons. First, the size of a generator's single tank capacity is not relevant when a generator may be refueled, and as noted, Verizon has a number of best practices that allow for indefinite refueling for all its generators, including those that have less than a 72-hour run-time capacity. Second, the cost to replace potentially thousands of generators would be punitive in the sense that Verizon would effectively be penalized for having done the right thing

[26] https://www.youtube.com/watch?v=KV139e9eQRY.

for decades while other carriers who may have not have done so will only have to replace a much smaller base of generators.[27]

As a matter of good economic policy, a change in rules should not impact the existing base of facilities, as the Commission fully recognizes even in the safety arena. General Order 95 is a good example of this principle. GO 95 states as follows:

> Under the terms of the new general order, existing facilities, lawfully erected in accordance with earlier general orders, are permitted to be maintained according to the rules effective when such facilities were constructed or reconstructed, except as to certain safety factor requirements specified in Rule 12.2; but any lines constructed or reconstructed after the new general order becomes effective, must comply with the rules therein contained. In other words, the new general order does not require a complete and immediate reconstruction of existing lines installed prior to its effective date. ***Such an order would be unreasonable to operators and to the public alike***.[28]

GO 95 goes on to state that:

> rules must not only be practical, from a physical point of view, but likewise they must be within reasonable economic limits; otherwise costs to serve and consumer rates may be adversely and unreasonably affected. Having in mind these considerations, Rule 12.3 in the new general order permits prior construction to remain in service . . . .[29]

Furthermore, a minimum backup power requirement of 72 hours on a single tank would negatively affect the deployment of wireless facilities. Wireless carriers already face significant challenges obtaining zoning permits, which in many cases delay for years the deployment of needed service improvements or even just service in

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[27] See Attachment 1, Declaration of Fred Zhu at ¶19.

[28] General Order 95 at xv (emphasis added).

[29] Id.

unserved or underserved areas. Adding what may be larger than necessary (given best practices) backup power facilities to an installation could make certain sites unavailable or raise resident or local government opposition, which will either delay a project further or result in its denial.

Finally, the Commission should be mindful of its limited authority to mandate backup power requirements given federal law.[30] Verizon encourages the adoption of a resiliency framework that serves as a set of reasonable and feasible standards guidelines for carriers to adopt. This makes sense because carriers compete in this area, too. Indeed, in the competitive environment under which it operates, Verizon differentiates itself by having the most resilient, superior network, which the October 2019 DIRS numbers for Marin, Sonoma and Napa counties bear out.

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. Please provide comments and analysis on this compliance requirement.*

The ACR Proposal's requirements for a backup power plan is much more than just backup power. It includes numerous details that reflect an effort to micromanage each provider's continuity plans. Specifically, the ACR Proposal would require a backup power plan that includes:

- detailed PSPS and grid outage response plans

[30] In this regard, Verizon joins and supports the comments submitted by CTIA laying out the limitations on the CPUC's authority.

- facilities with and without battery backup, fixed generation and mobile generator hookups
- Number of mobile generators and refueling trucks and specify which are stationed in CA
- Identify ability to replace damaged facilities, including logical and physical network route diversity and temporary facilities
- Identify employees dedicated to refueling and vendors including company and contract agreement
- Identify the ability to support near real time reporting on system outages as required by CPUC rules, OES regulations, and Cal Govt. Code
- Copies of refueling schedules
- Copies of roaming agreements
- Copies of cooperative agreements to pool resources with other providers

Verizon has had for many decades robust continuity plans without any regulatory mandates. While Verizon recognizes that the Commission seeks greater transparency into how communications providers are prepared for disasters with adequate backup power resources, the Commission's collection of this information is unnecessary, and any future effort to use the information to micromanage operational matters would be misplaced.

For example, certain items in the ACR Proposal for Backup Power Plans, such as the identity of employees dedicated to refueling or the identity of our vendors, is unnecessary. Whether a provider uses one vendor over another or which employees are dedicated to refueling efforts is not information that the Commission has the ability to assess the merits of, nor the authority to dictate.[31] This is also dynamic data

[31] 47 USC Section 332(c)..

that would quickly become outdated. Furthermore, copies of roaming agreements and cooperative agreements (to the extent they exist at all) are not explicitly relevant to a Backup Power Plan. All wireless providers have agreed that, during an emergency or where a provider's network is disrupted, that provider's 911 calls will default to a competitor's compatible network, pursuant to longstanding handset dialing protocols. This is an established industry practice and one that Verizon follows. Accordingly, the wireless communications network is designed to ensure maximum delivery of 911 calls, even where there may be outages for specific providers. Roaming agreements are competitively sensitive commercial agreements between service providers that exist independent of a provider's backup power practices. Verizon respectfully submits that providing copies of such roaming agreements is unnecessary; such agreements are not what Verizon considers a component of a backup power plan. For the foregoing reasons, the Commission should not prescribe specific elements of the Backup Power Plan, and certainly should not require such Plan to include elements unrelated to backup power.

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

    i. How should "clean energy backup" be defined?

    ii. Provide specific information on barriers to procuring specific types of clean energy backup power (e.g., cost, permitting, etc.).

Verizon supports the use of clean energy and in fact, has a corporate goal of becoming carbon neutral by 2035.[32] As explained in the attached Declaration of Laurie Gebhardt, Verizon attempts to supplement its primary power with clean energy where it is feasible. The proposal to use clean energy for backup power, however, is misplaced for several practical reasons, principally because clean energy, such as solar, wind, or fuel cells, is infeasible as a primary power source. Any such sources would require significantly more space than we currently possess and are not a reliable backup power source.[33]

As an example, Verizon typically is able to house its battery array and generator at a particular macro site in a 24 square foot space; in contrast, a solar panel array to power one macro cell site would require a minimum of 1,300 square feet for the panels alone.[34] Additional space would also be necessary for conversion[35] and electrical equipment as well as batteries to store energy. Verizon does not have the space for such expansive backup power solutions. Moreover, while generators may be deployed at many locations, solar arrays can only be deployed where there is no

[32] https://www.verizon.com/about/news/verizon-commitment-carbon-neutral-2035

[33] The ACR and Proposal fail to perform the feasibility or cost benefit analysis required by PU Code section 321.1(B)(requiring the commission "shall take all necessary and appropriate actions to assess the economic effects of its decisions and to assess and mitigate the impacts of its decisions on customer, public, and employee safety.") Furthermore, as a legal matter, the Commission does not have authority to dictate the fuel or power source that communications providers use to operate their networks. See CTIA comments filed concurrently in this proceeding.

[34] Attachment 2, Declaration of Laurie Gebhardt, at ¶ 6.

[35] Additional space is necessary for conversion equipment that converts power from the panels into a form that the cell site can use.

obstruction by trees, buildings or other structures.[36] In addition, solar energy would be unreliable during certain events such as wildfires where the smoke may block or filter the solar rays necessary for the panels to gather energy.[37]

Wind turbines present many of the same obstacles and feasibility challenges as they require space, ideal wind conditions (which are often not present in many parts of California), and extensive environmental and regulatory approval, including studies on avian impact.[38] In addition, there is often community opposition to such turbines and their noise impacts.

Fuel cell generation is also neither a reasonable nor practical alternative as a backup power source, as fuel cell generators rely upon: (i) a constant natural gas source (not a "clean energy" source); or (ii) hydrogen, which is highly flammable (and therefore, risky to place, particularly in high fire threat areas).[39] Furthermore, vendors for refueling fuel cell generators often do not operate on an emergency, after-hours basis.[40] And natural gas pipelines are often turned off during disasters, such as earthquakes, to prevent fire hazards.[41]

Finally, Verizon has invested significant amounts in diesel generators to ensure that it has ample backup power resources for its network. The costs of replacing Verizon's existing diesel generators with any type of clean energy resource would be

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[36] Attachment 2, Declaration of Laurie Gebhardt at ¶ 6.

[37] Attachment 2, Declaration of Laurie Gebhardt at ¶ 7.

[38] Attachment 2, Declaration of Laurie Gebhardt at ¶ 7.

[39] Attachment 2, Declaration of Laurie Gebhardt at ¶ 8.

[40] Attachment 2, Declaration of Laurie Gebhardt at ¶ 8.

[41] Attachment 2, Declaration of Laurie Gebhardt at ¶ 8.

astronomical, and would penalize Verizon for the amount that it has already invested in making its network robust and reliable.

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.*

The concept of a waiver indicates the need for a more nuanced discussion and analysis on applicability of the proposed requirements. The ACR Proposal is extremely broad in its application and arguably reaches all elements of a provider's network. Because the requirements suggest a potentially impossible standard to meet e.g., requiring that emergency notifications and accessibility to web browsing for emergency notices be available for 100 percent of consumers, the ACR Proposal sets up a standard that may be subject to disputes and litigation. Instead of having providers ask for waivers, the ACR Proposal should affirmatively exempt small wireless facilities, capacity-focused facilities, and facilities where it is infeasible to deploy backup power or otherwise impossible to comply with the "compliance items."

Instead of simply exempting them from the proposed rules, the ACR Proposal anticipates that waivers may be available for "redundant facilities" and for "noncompliant facilities." Redundant facilities appear to be those that "do not need 72-hours of backup power 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 for 100 percent of consumers." As CTIA notes, it is unclear why this waiver for redundant facilities is necessary at all, if such facilities are not essential for maintaining such service. The waiver for "noncompliant" facilities is described as including those facilities that are "unable to comply with the 72-hour backup power requirement

because of significant risk to safety of life or health; or specific existing federal, state, tribal or fiscal law." These two types of waivers are insufficient. To the extent not specifically exempted from the requirements, there should also be a waiver for those facilities where it is "infeasible" to deploy batteries or generators.

Specifically, the ACR Proposal should recognize that there are sites or facilities where backup power is infeasible or impossible, due either to space, technological restrictions, landlord restrictions, or other practical issues. Certain cell sites have no or limited space for batteries (or face community opposition or zoning restrictions), and/or cannot accommodate either fixed or portable generators. For example, as discussed above, small cells or microcells have such limitations, and mountains, bridges, or tunnels also pose space limitations. In addition, there may be existing locations where Verizon has entered into a lease with a landlord that does not allow generators, or certain locations, such as rooftops, where it is unable to place generators. Moreover, narrow roads or hilly terrain will not accommodate the placement of a generator near the cell site, or even temporary deployable assets such as COWs or COLTs. Accordingly, the Commission should recognize that infeasibility or impossibility are further exempt categories from any backup power requirement.

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.*

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 ACR Proposal directs providers to share "critical facility location information" for certain purposes. While Verizon has proactively provided information about discrete parts of its network to Cal OES and first responders, Verizon has concerns about the wholesale disclosure of such information. As discussed below, this information is highly sensitive security information, as well as confidential and proprietary, and could be misused if bad actors obtained it. In addition, some of the purposes for which the Commission seeks the information appear misplaced and beyond its jurisdiction. Instead of any such "requirement," Verizon urges the Commission to support state legislation (such as AB 2676) that ensures that providers have the appropriate protections necessary to share such confidential data where necessary with public safety agencies other than the Commission.

While Verizon has endeavored to share as much information as necessary with public safety agencies and Cal OES for disasters and large PSPS events and in fact, provided them information of the network status in discrete locations, either on a proactive basis or as requested, we have considerable concerns about sharing such data on a broad basis. As an initial matter, information about our network is highly proprietary and if disclosed to competitors, it could be used for their marketing and

network design and to gain a significant competitive advantage.[42] Moreover, such network information can be used for cyber security attacks. In addition to cyber security concerns, there are concerns about direct threats to our facilities. For example, there is a group called “The 325 Group,” which espouses anarchist views, and which recently posted detailed instructions on "How to Destroy Cell Phone Towers."[43] The proposal that such data be distributed on a statewide basis to entities beyond the Commission accordingly implicates substantial confidentiality and security concerns, which the Commission cannot simply address by vaguely stating the information can only be provided to agencies that have “procedural and substantive protections equivalent to federal confidentiality statutes and rules.” Such protections must be provided through statute, either federal or state, not by the Commission.

Specifically, although Pub. Util. Code section 583 and General Order 66-D expressly protect the provision of utility confidential information shared with the Commission and Commission staff, there is no similar express protection of such information under the California Public Records Act (CPRA) at other state government agencies. Where Verizon has shared network information with the Commission staff, the staff is restricted from disclosing such information and its disclosure of such information without a full Commission decision is a misdemeanor.[44] GO 66-D also

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[42] *See Whyte v. Schlage Lock Co.*, 101 Cal.App.4th 1443, 1456 (2002) (protecting such strategic documents where “information would be valuable if known by a competitor because it would allow the competitor to predict and counter” defendant’s “marketing strategy, plans and techniques”).

[43] See https://325.nostate.net/2020/02/13/pdf-how-to-destroy-cell-phone-towers/.

[44] Even with statutory prohibitions, the inadvertent disclosure of such critical and confidential information is a real risk and possibility, as the Public Advocates’ recent inadvertent disclosure of data that Verizon marked as confidential demonstrates. Response of Cellco Partnership (U

establishes processes that allow providers to challenge a tentative staff decision to disclose information that is marked as confidential, which is not available under the CPRA.

In addition, Verizon notes that the ACR Proposal's statement that Commission staff could "analyze and process" information regarding network locations to determine whether there is "sufficient physical redundancy" and hardening itself raises a host of issues.[45] Regulatory review and analysis of where a service provider may offer service is the very definition of unlawful entry regulation. The Commission does not have the authority to dictate to wireless providers where and how they may provide services.[46] The Commission is preempted by federal law from directing wireless providers to build sites or provide service in certain locations.[47] And whether a wireless provider is providing "adequate facilities" or service is a policy judgment governed exclusively by the FCC's Title III licensing authority and service regulations. The Commission also does not have the authority to direct wireline competitive carriers to build facilities in certain locations. It only has the authority to order carriers of last resort to offer service throughout a geographic study area within their service

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3001 C) to Motion of the Public Advocates Office for an Order Compelling Data Request Responses (March 2, 2020) at 8.

[45] Proposal at 5.

[46] 47 U.S.C. 332(c)(3). See Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment et al., 33 FCC Rcd 9088, 9104 n. 84 (2018) (finding that "local jurisdictions do not have the authority to require that providers offer certain types or levels of service, or to dictate the design of a provider's network.")

[47] Bastien v. AT&T Wireless Servs., 205 F.3d 983 (7th Cir. 2000); Stroyer v. New Cingular Wireless Servs., 622 F.3d 1035, 1040-41 (9th Cir. 2010)) (decisions on "the requisite number of cellular towers to support service" and whether service "is above or below the proper standard for cell phone service" deal with market entry).

territory, and only if the carrier of last resort seeks high cost support for such area.[48] Finally, imposing buildout requirements would raise a significant barrier to entry for providers as they undertake the cost/benefit analysis of providing service in a given area or in the State, and could deter deployment of new facilities in some areas entirely.[49]

In sum, while Verizon is willing to share with public safety and first responders network information about discrete areas that may be at risk, before it can do so broadly, state legislation must be in place in order to protect the highly sensitive and confidential nature of the information. Furthermore, in the event that such state legislation is passed, this information should be provided solely for informational purposes and not subject to any Commission-imposed approval process.

6. <u>Emergency Operations Plans</u>*: 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.*

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

    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.*

The ACR Proposal appears to suggest that the Emergency Operations Plan should include various elements, including: emergency contact information with an

[48] D.96-10-066, Conclusion of Law, paras. 132-133 (COLRs shall be required to serve the entire geographic study area(s) of their service territory if they wish to receive high cost support for the geographic study area.)

[49] Similarly, the Commission cannot delegate such authority (which it does not have on its own) to staff to conduct such analyses and determine where there is insufficient redundancy.

employee who can serve as the State Operations Center ("SOC") liaison and can be at the SOC 24/7 during emergencies; participation in emergency preparedness exercises; public communication plans; and communications with state and local emergency responders. While Verizon certainly has emergency procedures and protocols, which include a liaison to engage with the SOC and communications plans for the public and state and local emergency responders, providers need flexibility to develop Emergency Operations Plans that are feasible and consistent with their operations. Some of the information listed in the ACR Proposal does not provide that flexibility.

Emergency Contact Information and Emergency Preparedness Exercises.

Verizon can provide personnel to deploy during a Level 1 activation of the SOC. However, we do not have unlimited resources to deploy personnel at the SOC at all times, such as 24/7, and at times other than Level 1 activations. Our network personnel work around the clock during emergencies to monitor and maintain the network during emergencies, and are often required to be at Verizon's own internal emergency operations center (when activated), and therefore, cannot be deployed at all hours at the SOC. Moreover, Verizon conducts emergency preparedness exercises on an annual basis but in some cases, these exercises may be supplanted by actual events; prescribing annual exercises is overly prescriptive and is arbitrary.[50] Indeed, there is no basis in the record for this requirement.

[50] Unsupported and unjustified requirements are subject to reversal. Pub. Util. Code § 1757.1(a)(1), (4).

Public Communications Plans.

As for public communications plans, Verizon currently already has tools that inform our customers when there is a service disruption or degradation in the area in which the customer's records indicate that it resides. Specifically, our customers may log into their My Verizon app to review information about where there are service disruptions, along with estimated time for restoral. And for major events we maintain updated information for the public regarding service issues. However, we do not currently post outage maps on our public website. The Commission should allow providers flexibility in how they notify their customers of any service disruptions.

Communications with State and Local Emergency Responders.

Finally, the proposed information to be provided to *state and local emergency responders* is unnecessary and conflicts with proposed information the Cal OES is currently proposing be reported to it during communications service outages.[51] Specifically, Cal OES' proposed rules would require reporting of outage information (including zip code, and time/date of estimated restoral of service) when certain thresholds are triggered.[52] In contrast, the ACR Proposal's list would prescribe an entirely different set of data to be collected and provided three times a day to Cal

[51] See Cal OES Notice of Modifications to Proposed Text of Regulations (March 1,6, 2020); https://www.caloes.ca.gov/cal-oes-divisions/public-safety-communications/ca-9-1-1-emergency-communications-branch/outage-reporting.

[52] Verizon currently also provides information about major service interruptions to the Commission pursuant to the Commission's General Order 133-D and has provided similar information to OES on request.

OES, which is both unnecessary and would burden already constrained network resources.

To date, during emergencies and PSPS events, Verizon has partnered with Cal OES and provided information that Cal OES requests, at least twice a day, and sometimes three times a day. As noted, Cal OES has proposed rules in its rulemaking that require reporting of outage information upon certain thresholds being triggered. Cal OES' proposed rules do not require the sort of detailed information that the ACR Proposal seeks to have disclosed, some of which does not appear to provide situational awareness. Instead, Cal OES' proposed rules focus on information that is immediately ascertainable. In contrast, some of the ACR Proposal's requested information would require manual review and therefore may not be available immediately**.** For example, during a disaster or PSPS event, our network teams are focused on, among other things, monitoring the status of cell sites and identifying where power is out and where fuel may need to be delivered. During this period, the network team is in triage mode, and may not have the capacity to determine immediately whether facilities were damaged or destroyed during a network event (or whether they simply lost power). Situational awareness also does not require that Cal OES understand whether the facilities are either out of power or damaged. Requiring this level of detailed information during an event will divert necessary employee resources from their primary task of managing the network. Verizon respectfully submits that the Commission should defer to Cal OES with regard to this requirement.

Finally, Verizon cannot provide temporary access to real-time network monitoring tools. Although we have various tools for monitoring the network, there is

not one monitoring tool or dashboard that would provide information regarding cell site status that would be comprehensible to an individual outside of Verizon, nor can Verizon create a tool specifically for such external view or access. Verizon's network operations sit behind a secure firewall and as a security matter, we do not allow external access to our internal monitoring system. [53] Even if there were a way to provide external access, for all the reasons discussed above regarding confidentiality, there is too great of security risk to allow external access. Verizon will provide situational awareness information to state stakeholders and public safety agencies, as needed and pursuant to requests, but objects to providing external access to its internal real-time monitoring system.

7. Current Mitigation Efforts: in response to this ruling, all respondent 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:

[53] For other areas not related to monitoring, we provide limited access for billing and vendor purchase orders.

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

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

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

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

e. *Identify barriers to building resiliency into your networks;*

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*

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.*

Below are Verizon's responses to each of these items.

a. Verizon already has fixed generators (or the ability to attach portable generators) at the vast majority of its macro cell sites and at all mobile switching centers. As noted above, Verizon has already made substantial investments to its network and, this is reflected in the statistics: on average, 97% of our macro cell sites remained in service during the major wildfires and PSPS events last year, and our statistics for cell sites out of service appear to have out-performed other wireless providers. However, we are constantly improving our network and are currently revisiting whether there are macro sites in High Fire Threat Districts Tiers 2 and 3 that do not currently have fixed generators and whether circumstances have changed to make prior infeasible sites feasible, for example, where attitudes and approaches have changed in light of PSPS events and disasters. It may be that in such cases we can hopefully now obtain landlord approvals, to add fixed generators to those sites. We

also are adding additional portable generators to our already extensive inventory of portable generators. Of course, the more fixed generators that are at sites, the less need there is for portable generators. While Verizon already remotely monitors its sites and generators, we are adding additional enhanced monitoring systems of generators at macro sites in Tiers 2 and 3, which provide additional details about the status of generators and fuel levels.

b. Verizon has purchased additional portable satellites on trailers (SPOTs)/Mobile Command Trailers (MCTs), which we plan to have available before the summer, as well as satellite trailers to assist with Ethernet backhaul issues during fires.

c. While not planned specifically in anticipation of PSPS events or disasters, Verizon has plans for building additional sites in the coming year, some of which fall into the High Fire Threat District Tiers 2 and 3. As we build hub sites, we are building diverse paths to those sites.

d. As noted above, Verizon clears and grooms its major cell sites of brush and vegetation as needed and in coordination with landlords for sites that it leases, and encloses generators and batteries in cabinets or shelters where feasible. We comply with existing local, state, and jurisdictional requirements as we build our sites, including earthquake building codes. We have used flame-retardant painting on fences and created defensible perimeters for sites collocated on PG&E property.

e. As discussed above, building a wireless network is highly complicated and depends on multiple factors. Adding cell sites to create additional capacity and coverage is not an easy process and it can take years to build even one macro cell

site, with multiple barriers and challenges every step of the way. For example, even identifying the right site for signal propagation purposes can be difficult, as in some locations, topography is a challenge. For example, in certain areas such as Malibu, the canyons and mountains make it difficult to build a macro cell site that can transmit widespread signals. After identifying a site that is suitable from a topographical and coverage or capacity perspective, we need to find the appropriate property for the cell site and backup power, which requires negotiating a reasonable lease agreement with a landlord. The next challenge is designing the site while addressing and resolving community opposition and/or jurisdictional and permitting issues, such as local, environmental, and zoning approvals. Moreover, procuring the necessary backhaul from other providers (or building it ourselves) and obtaining power from the electric companies adds another layer of complexity and delay. All of these steps can limit how we design a cell site or even prevent a site from being built. Accordingly, it is an extremely laborious and costly process to build even one macro cell site. For example, the cost to build a typical macro site is on average **<<Begin Confidential>>** [redacted] **<<End Confidential>>**, a not insignificant number.

Similarly, the addition of generators to a site also depends on various factors as explained above. Often a site will not have sufficient space for fixed generators or landlords may not permit them, or the rooftop will not support the generator. It may still be imperative to build the site without a generator because service issues require a solution and there are no other options available.[54] There are environmental

[54] For example, a particular landlord may be the only person in a community willing to lease her property and without that location the entire community would suffer poor service.

restrictions on running generators beyond certain amounts of time, which require regulatory approvals and waivers.

Finally, these same regulatory, space, permitting, and environmental concerns are implicated with the building of fiber routes**.**

f. As noted above, Verizon is in the process of adding additional macro cell sites that are located in High Fire Threat District Tiers 2 and 3, which will add resiliency to our network**.** We are also adding to our already extensive supply of portable generators and adding fixed generators to macro cell sites in Tiers 2 and 3. [See Attachment 1, Declaration of Fred Zhu.] We are purchasing additional temporary deployable assets as well.

g. There may be discrete locations where communications service may be disrupted or degraded during a power outage, because backup power is not available due to space, technological, or other restrictions. Verizon is exploring long term solutions to address these areas, but suggests that the Commission consider in its micro-grid proceeding whether the electric utilities may target service in its grid to such critical areas.

8. *Other Topics: Any other issues to be added or discussed? Is there anything we want to propose? Recognition that the requirements should grandfather existing sites and that there will be a phase-in period? Best Practices? Exemptions for environmental regulations? Recognition of technical/feasibility restrictions*

A factual record has not been developed; the Proposal is therefore vulnerable to reversal.

As noted at the outset, the record does not support the ACR's erroneous assertion that "[t]he record developed thus far in this proceeding makes clear that

emergency calls and notifications often fail during disasters such as wildfires, floods, and earthquakes, leaving the public in a communications void and, at critical times, in peril."[55] If the Commission adopts the ACR Proposal based on this unsupported foundation, those regulations will ultimately prove unenforceable, as this central premise "is not supported by the findings," is "an abuse of discretion," and is the product of a process that did not follow the "manner required by law."[56]

By failing to cite any support for the conclusion that communications "often fail during disasters," the ACR makes it difficult for Verizon and other members of the communications industry to respond in a meaningful and effective way. This failure to give the industry a meaningful opportunity to consider and respond to the underlying evidence violates the due process rights of the industry's members, as they are deprived of meaningful notice and an opportunity to be heard on these matters.[57] As the Commission has explained: "When a case is conducted in the manner anticipated by the rules, parties have time to review – and an opportunity to respond to – any material submitted by other parties before that material is considered by the Commission. This is due process."[58] Any "opportunity to respond" (such as these Comments) is hampered if the Commission fails to identify the materials that support

[55] Ruling at p. 2.

[56] Pub. Util. Code § 1751.1(a)(1), (2), (4).

[57] *See generally* U.S. CONST. amend. XIV; CAL. CONST. art. 1, § 7(a).

[58] *Application of Velocity Commc'ns, Inc.*, Order Modifying Resolution T-17548 and Denying Rehearing of Resolution T-17548, as Modified, D.18-06-036, 2018 WL 3304526, at *7 (Cal. P.U.C. June 21, 2018).

its central propositions. The Commission's decision-making process suffers as a result.

For similar reasons, the ACR's failure to cite any support for its core premise is contrary to Rule 13.6(a) of the Commission's Rules of Practice by infringing on the "substantial rights" of the communications industry members. Rule 13.6(a) provides that "[a]lthough technical rules of evidence ordinarily need not be applied in hearings before the Commission, substantial rights of the parties shall be preserved."[59] "[S]ubstantial rights" include the opportunity to test evidence through cross-examination[60] or otherwise respond to evidence entered into the record.[61] Without knowing what evidence the ACR is relying on, industry participants are unable to meaningfully respond to the Assigned Commissioner's views of the evidence.

To the extent that Verizon has identified statements in the record that purport to address call failures during emergencies, those statements constitute impermissible, uncorroborated hearsay that has not been verified through any reliable sources of information (such as data from the communications providers themselves).[62] The Commission cannot rely upon statements like these for its factual

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[59] Rule 13.6(a).

[60] *See Westcom Long Distance, Inc. v. Citizens Utilities Co. of Cal.*, D.00-09-071, at 97 (Cal. P.U.C. Sept. 21, 2000).

[61] *See Order Instituting Rulemaking on the Commission's Own Motion to Establish Consumer Rights and Protection Rules Applicable to All Telecommunications Utilities*, Order Modifying Decision (D.) 06-03-013 and Denying Rehearing of the Decision, as Modified, Nos. 00-02-004, 06-12-042, 2006 WL 3831232, at *4 (Cal. P.U.C. Dec. 14, 2006) .

[62] *See, e.g.*, CPUC Staff, *Safety Principles for Communications Providers* (Mar. 29, 2019) at p. 1 ("As recent events have shown, communication failures during such calamities are common, with lives being lost as a result"); *id.* at p. 2 ("time and again, we learned of failures within California's communications grid in news reports ..."); CPUC Communications Division, *The*

findings. The Commission has recognized that "[w]hile hearsay is admissible in our administrative hearings, it cannot be the basis for an evidentiary finding without corroboration where the truth of the out-of-court statements is at issue."[63] In light of these rules, the underlying "evidence" in the record cannot support the Commission's ultimate findings in this proceeding.

To give just one example of the gaps in the record, at a workshop in this proceeding, the Director of the Governor's Office of Emergency Services asserted that 341 cell sites went offline during the October 2018 wildfires.[64] Various members of the communications industry addressed this claim in a filing in May of last year, explaining:

> [T]he implication that cell sites were offline for the duration of the fires is misleading. From experience, wireless carriers know that when they have cell sites out, it is many times for just a day or two, if not far less. Further, the statement "cell sites were off line" is ambiguous. Does that include outages of cell sites that did not affect a service provider's coverage or service? Was that across all of last year's October wildfires and all the affected geographic areas? Does it include cell sites in areas that were fully evacuated and remain uninhabitable as a result of the fires? Does it include cell sites in areas that were declared off-limits as a result of

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Future of California's Communications Grid: En Banc Hearing Summary May 20, 2019 (July 8, 2019) at p. 8 ("Commercial networks and infrastructure often fail because of a lack of site hardening or insufficient back up power/ diesel generators."); Workshop Transcript, Statement of Mark Ghilarducci (Nov. 1, 2018) at p. 18 ("the number of sites that went down and off-line was far too many").

[63] *Investigation on the Commission's Own Motion Into the Fitness of the Officers, Diretors, Owners and Affiliates of Clear World Commc'ns Corp.*, Opinion Resolving Investigation, D.05-06-033, at 53 (Cal. P.U.C. June 16, 2005) (citing Cal. Gov. Code § 11513(d)). The Court of Appeal has also held that "uncorroborated hearsay cannot constitute substantial evidence to support an agency's decision absent specific statutory authorization." *The Utility Reform Network v. Pub. Utilities Com.*, 223 Cal. App. 4th 945, 962 (2014).

[64] Workshop Transcript, Statement of Mark Ghilarducci (Nov. 1, 2018) at pp. 14-15.

hazardous conditions? Does it reflect where deployables or other capacity enhancements were able to quickly fill in coverage loss?[65]

In the nearly year-long period since that filing, the Commission has not attempted to answer those questions. If the Commission does not undertake fact-finding efforts to support its central premises, the ACR Proposal will be subject to reversal.

Technical Workshops should be held to develop a factual record.

Technical workshops would further develop and resolve some of the legal and practical issues raised above, and is the appropriate forum in which the Commission and the industry could work together to develop best practices that are implementable.

Avoid Multiple Potentially Inconsistent Requirements.

Verizon recognizes the importance of resiliency and understands the Commission's desire to address them soon, but it must follow the processes in law. But these same issues are also being addressed by a multitude of bills in the State Legislature[66] as well as in Congress. Given these various concurrent efforts, the Commission's action on these issues may be premature and it is possible that the industry may face a number of different and possibly conflicting requirements from the Commission, the State, and Federal law. To avoid such inconsistent or conflicting

[65] *See Motion of AT&T, CTIA, Sprint, T-Mobile and Verizon Wireless to Strike Safety Principles for Communications Service Providers from the Record* (May 6, 2019) at p. 11.

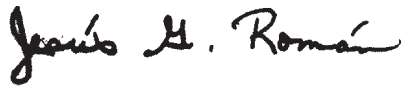
[66] See for example, SB 431 (McGuire) (backup power requirements); SB 1099 (Dodd) (related to emergency backup generators), AB 2421 (related to permitting for backup power generators, and, *inter alia*, (SB 1069 (Jackson) (regarding emergency notifications).

requirements, Verizon believes that the Commission should take the time to develop the factual record, while allowing the legislative process to unfold.

III. CONCLUSION

Verizon appreciates the opportunity to provide its feedback on the ACR Proposal and recommends that the Commission hold focused workshops to further examine the many complex, technical issues that have been raised. To the extent that the Commission decides to adopt any part of the ACR Proposal at this time, Verizon recommends that it make the revisions suggested above and adopt them as general standards, guidelines and best practices for the industry, subject to the limits of feasibility. Small wireless facilities should be excluded, and any requirements should be restricted to Tiers 2 and 3 of the High Fire Threat Districts, consistent with the scope of this Phase of the proceeding.

Respectfully submitted this 3rd day of April 2020.



Jesús G. Román
Jane Whang
Verizon
15505 Sand Canyon Avenue
Irvine, CA 92618
Tel: (949) 27202
E-mail: jesus.g.roman@verizon.com
Attorneys for Verizon