



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

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Order Instituting Rulemaking Regarding
Emergency Disaster Relief Program

R.18-03-011

**T-MOBILE WEST LLC'S COMMENTS IN RESPONSE TO THE
ASSIGNED COMMISSIONER'S RULING AND PROPOSAL FOR
COMMUNICATION SERVICE PROVIDER RESILIENCY AND
DISASTER RELIEF REQUIREMENTS**

Leon M. Bloomfield
Law Offices of Leon M. Bloomfield
1901 Harrison St., Suite 1400
Oakland, CA 94612
Telephone: 510.625.1164
Email: lmb@wblaw.net

Attorney for T-Mobile West LLC

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TABLE OF CONTENTS

I. BACKGROUND 1

II. THE ACR/PROPOSAL’S RELIANCE ON NORS DATA IS MISGUIDED 3

III. COMMENTS ON THE PROPOSAL 6

1. APPLICABILITY OF REQUIREMENTS 6

 a) **Applicability Seems Overly Narrow And Vague..... 6**

2. ALTERNATIVE APPLICABILITY 8

3. DEFINITION OF RESILIENCY 8

 a) **The Proposed Definition of Resiliency is Problematic..... 9**

 b) **Proposed Definition of Resiliency. 10**

4. BACKUP POWER REQUIREMENT..... 11

 a) **The Proposed Backup Power Requirement is Unnecessary and Exceeds the Commission’s Jurisdiction 11**

 b) **The Definition of “Outage” Should be Consistent with Cal OES Regulations..... 14**

 c) **The Proposed 72-Hour Requirement is Unnecessary and Beyond Commission’s Jurisdiction. 15**

5. BACKUP POWER PLANS..... 17

 a) **The Focus on Clean Energy in this Proceeding is Misguided. 19**

 b) **The Need for Waivers is Unclear. 20**

 c) **The Critical Facility Location Information Sharing Proposal Raises Serious Concerns. 20**

 d) **The Critical Infrastructure Resiliency, Hardening and Location Information Sharing Proposal Would Create Serious Security Risks and is Unrealistic..... 22**

6. EMERGENCY OPERATIONS PLANS 24

 a) **The Specific Information Identified for Inclusion is Problematic. 25**

 b) **No Need for Additional Information. 27**

7. CURRENT MITIGATION EFFORTS 27

 a) **Additional Generators. 28**

 b) **Additional Temporary Facilities..... 28**

 c) **Additional Network Redundancy. 28**

 d) **Current Planning..... 29**

 e) **Barriers..... 29**

 f) **Cooperative Agreements..... 30**

 g) **Future PSPS Events. 30**

8. OTHER TOPICS FOR COMMISSION CONSIDERATION 30

IV. CONCLUSION 31

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Pursuant to the Assigned Commissioner’s Ruling and Proposal for Communication Service Provider Resiliency and Disaster Relief Requirements dated March 6, 2020 (the “ACR”), T-Mobile West LLC dba T-Mobile (U-3056-C), on behalf of itself and its affiliate Metro by T-Mobile (U-3079-C)¹ (collectively referred to as “T-Mobile”), submits the following comments.

I. BACKGROUND

T-Mobile agrees with the Assigned Commissioner that “Californians rely on both their phones and the Internet, whether using wireline or wireless technologies, to receive emergency notifications and critical information in a disaster, to contact family and friends, and to access 9-1-1 to reach first responders.”² Indeed, telecommunication carriers play a critical role in helping consumers and first responders face the serious challenges presented by natural disasters like the

¹ T-Mobile West LLC and MetroPCS California are separately registered wireless carriers, both of which are wholly-owned subsidiaries of T-Mobile USA, Inc. and share the same network facilities.

² ACR at Appendix A, Assigned Commission Proposals re Communications Service Provider Resiliency and Disaster Response Requirements (the “Proposal”), at p. 1.

many wildfires that have plagued California in recent years as set forth in detail previously by T-Mobile and other providers in this docket.³

However, at times natural disasters unavoidably disrupt some services, and in certain situations like the Camp Fire, they can destroy existing infrastructure on a wholesale basis regardless of how it is constructed or designed. Thus, as is widely recognized, service recovery and restoration are the critical, and most practical, components of mitigating the potential impact of natural disasters on consumers and first responders.⁴ To meet these challenges, T-Mobile's technology, practices, processes, and policies are constantly evolving in an effort to further enhance the resiliency of its network and facilities and more effectively respond to the needs of all who are impacted by these types of emergency situations.⁵

The Proposal presents another marker in the path towards promoting network resiliency awareness. Critically, it recognizes, among other things, that backup power on every piece of equipment is not necessary, possible, or in the public interest⁶ and that there are significant

³ See e.g., T-Mobile Comments in Response to the Assigned Commissioner's Ruling Requesting Information on Hardening Communications Infrastructure and to Ensure Customer Access to 911 at All Times (August 29, 2019) ("T-Mobile Infrastructure Hardening Comments").

⁴ In general, the wireless industry has focused significant resources on and attention to emergency preparedness. See, e.g., *Decision Addressing Standards for Telecommunications Emergency Backup Power Systems and Emergency Notification Systems Pursuant to Assembly Bill 2393*, R. 07-04-015 (September 8, 2008), Appendix A (incorporating *Reliability Standards for Telecommunications Emergency Backup Power Systems and Emergency Notification Systems*, Final Analysis Report (May 9, 2008), <http://docs.cpuc.ca.gov/PUBLISHED/GRAPHICS/84115.PDF> ("Reliability Standards Report").

⁵ See e.g., T-Mobile Infrastructure Hardening Comments at pp 5-8. T-Mobile understands from the previous comments filed by other carriers that the same is true for all the other major carriers as well.

⁶ Proposal at p. 2 ("that there is not a need to adopt a backup power requirement for every single component of communications networks and that circumstances may exist in which placing a generator is not possible or in the public interest. Communications networks are complex and diverse and there may not be a "one size fits all" approach to ensuring resiliency.").

barriers to installing backup power even where appropriate.⁷ Perhaps most importantly, it seems to recognize – for the first time – the fact that wireless networks have the potential to provide service even in emergency situations even where certain cell sites are not functional.⁸

II. THE ACR/PROPOSAL’S RELIANCE ON NORS DATA IS MISGUIDED

The ACR and the Proposal, however, still seem to be based on two fundamental and critical misunderstandings. First, the ACR and Proposal rely on a mis-statement of the current state of wireless network resiliency and second, they rely on a misinterpretation of the data provided to date, especially the data related to the expansive late-October PSPS events. In brief, the ACR asserts that the “record developed so 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.”⁹ Similarly, the Proposal states that

These outages [during recent wildfires and PSPS events] demonstrated that a lack of resiliency, a failure to prepare for disasters, and a failure to actively communicate service outages to the public and emergency responders had real consequences for the public in the affected areas.¹⁰

Those conclusions, however, are unfounded at least as to wireless communications. In particular, these statements, as well as the statements made at the November PHC and in the press, rely primarily, if not solely, on information from FCC Network Outage Reporting System

⁷ *Id.* at p. 2 (“For example, environmental and clean air requirements, local fire codes, and building safety rules may disallow the citing of diesel generators or battery arrays at specific sites. Network components may be located in restricted rights-of-way, have prohibitions in lease agreements, or other restrictions that limit the addition of batteries or fuel tanks to the site.”).

⁸ *Id.* at p. 2 (“a wireless company may have flexibility at antenna sites that may entail boosting power of adjacent sites to enhance the coverage area or have roaming agreements with other carriers.”).

⁹ ACR at p. 1.

¹⁰ Proposal at p. 1; *see also* Proposal at p. 5 (“The record of this proceeding has additionally exhibited that communications networks are subject to massive outages as a result of network redundancy and hardening.”).

("NORS") and Disaster Information Reporting System ("DIRS") reports.¹¹ And although those reports do reflect that a number of cell sites were out of service, as discussed below, the number of cells sites down is not a meaningful source of information with respect to the services available to customers in those areas nor do they provide any insight into the actual number of customers impacted.

Indeed, the repeated references to the hundreds of thousands of wireless customers left without service during the October PSPS are unfounded.¹² Those numbers are based on information taken from NORS reports (and, as extrapolated, from DIRS reports), which are federally mandated to include the number of "potentially affected wireless users." However, that number is (per FCC regulation) nothing more than the national average of subscribers per macro site.¹³ Thus, for example, if a carrier had a national average of 1,000 subscribers per macro site, and 200 sites went down in the PSPS event, the NORS report would indicate 200,000 "potentially affected wireless users". Those numbers do not in any way reflect the number of

¹¹ See e.g., Transcript of November 30, 2019 Pre Hearing Conference at 3:12-26 ("During the PSPS events this fall, failures in communications infrastructure network occurred on a significant scale. For example, Marin County had 57 percent of its 280 cellular towers out of service and at one point during the PSPS on October 28th in the Bay Area, San Mateo and Contra Costa counties, 11 percent of their cell towers failed to work according to reports from the Federal Communications Commission. And I underscore that it came from the FCC where we received that information. Sonoma, Lake, Humboldt, Santa Cruz and Calaveras counties had days where over 20 percent of the cell towers were out.") (President Batjer); see also *id.* at 23:5-15 ("Cal OES obtained data from multiple sources that included the FCC DIRS and the CUEA reports.") (Paul Truxel, Cal OES).

¹² *Id.* at 24:21-26 ("One example, we were -- reported wireline customers out of service were 223,973 in the DIRS report, while the CUEA report reported 56,898. That's a difference of over 167,000 customers.) (Paul Truxel, Cal OES). See also San Francisco Chronicle (October 29, 2019) ("On Tuesday, nearly 224,000 customers across the state were without communication services - television, internet and phone - according to data that companies reported to the Federal Communications Commission. That number dropped from more than 450,000 Monday." <https://www.sfchronicle.com/california-wildfires/article/Without-cell-service-Bay-Area-fears-emergency-14572616.php>)

¹³ See 47 C.F.R. § 4.9(e)(2) ("In determining the number of users potentially affected by a failure of a switch, a wireless provider must multiply the number of macro cell sites disabled in the outage by the average number of users served per site, which is calculated as the total number of users for the provider divided by the total number of the provider's macro cell sites.").

end users actually impacted. Indeed, those numbers do not reflect the number of actual customers within the coverage area of a particular cell site at a given time¹⁴ nor does it reflect whether customers in a given area are otherwise receiving service from neighboring cell sites or through other adjustments to the network.

These misunderstandings, although understandable, are particularly problematic in that they can mislead the public about the reliability of wireless services and create additional uncertainty in these already particularly uncertain times. T-Mobile submits that accurate information and awareness, not false alarms, will better serve the public when the next disaster strikes. In addition, incorrect data analysis can lead to misguided, although well-meaning, attempts to “fix” something that is not broken or to venture into areas which are outside the authority of the Commission. Moreover, misplaced reliance on the number of cell sites down, or FCC data on “potentially affected wireless users,” can distract the Commission (and lawmakers) from focusing on the underlying root cause of the disruptions created by the October PSPS events like untimely, inadequate and/or inaccurate outage notifications from IOUs, and overly broad shutoffs; issues which are otherwise being addressed in several ongoing proceedings including the Microgrid and De-Energization dockets.

To be clear, T-Mobile does not assert that there were no actual service outages during the October PSPS events,¹⁵ or that natural disasters do not sometimes create situations that cause cell sites to go down and even disrupt service. However, as discussed more fully below, those outages on the T-Mobile network in the late October PSPS events were limited in scope and

¹⁴ If a subscriber is in an area where there is actually no coverage available, the network has no way – since there is by definition no coverage - of locating the subscriber’s device. Thus, there is not reliable way of determining how many wireless subscribers are impacted by an outage. Accordingly, T-Mobile focuses on maintaining service over as large an area as possible in emergency situations.

¹⁵ See n. 33, *infra*.

location-specific *precisely because of the resiliency of the T-Mobile network* and its ability to provide essential communications services through its overlapping coverage and emergency overlay capabilities.

That said, T-Mobile remains fully committed to furthering its efforts to minimize any outages – in an emergency or otherwise – but given the nature of the technology and the unpredictability of such events, believes that the focus for all stakeholders should be on providing carriers with the flexibility to manage their networks so that recovery and restoration can be achieved as quickly and completely as possible regardless of the disruption. To that end, T-Mobile looks forward to continuing to work on these issues in collaboration with the Commission and the full breadth of interested stakeholders.

III. COMMENTS ON THE PROPOSAL

Per the direction of the ACR, T-Mobile offers the following comments on the issues identified in the ACR and the Proposal.

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.” The ACR seeks comments on the following:

- a) Is this definition of 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?

➤ Comments on Applicability of Requirements

a) Applicability Seems Overly Narrow And Vague. Resiliency is a concept that should be applicable to all providers of critical infrastructure including communication providers

and electric utilities. The interdependence of these industries is a critical component of providing consumers and first responders with reliable services as a general matter, including during times of emergencies.¹⁶

Moreover, the concept of applicability is inextricably tied to the nature of the requirements or obligations being considered. To the extent this Phase is focused on resiliency of the communications network – a concept which is far more broad than backup power - it is difficult to imagine such a proceeding without the participation of electric utilities (that provide the power both consumers and industry rely on),¹⁷ landline carriers, cable providers, VoIP providers, backhaul providers, internet providers, tower owners/operators, PSAP operators and wireless carriers. That said, the definition in the Proposal is ambiguous and could lead to confusion and uncertainty as to what entities are to be included in this process. For example, the phrase “all companies owning, operating, or otherwise responsible for infrastructure that provides or otherwise carries” could inadvertently sweep a number of entities (such as equipment manufacturers or companies that install or maintain facilities) which do not fall within the Commission’s jurisdiction or otherwise have a role to play in this proceeding.

b) Type of Providers. T-Mobile has no comment at this time on what type of “providers” should be excluded as it is unclear what entities are included in the term “provider”.

¹⁶ See e.g., FCC Statement on joint efforts of CTIA and Edison Electric Institutes’ to establish a cross-sector resiliency forum. Link at <https://www.fcc.gov/document/chairman-pai-commends-establishment-cross-sector-resiliency-forum>

¹⁷ See Proposal at 2 (“These services are all necessary components of the state’s ability to provide access to 9-1-1, to distribute emergency alerts, warnings and notifications, and to provide access to web-based instructions and GIS maps that may provide access to critical de-energization or evacuation information.”).

2. **Alternative Applicability**

Alternatively, the ACR notes that “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].” The ACR seeks comments on the following:

- 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?

➤ **Comments on Alternative Applicability**

T-Mobile does not object to the use of the definition of communication service providers in D.19-08-025 but reiterates that any substantive consideration of resiliency must include electric utilities and other key providers of services and infrastructure required to provide communications services to consumers and first responders in emergency situations.

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. The ACR seeks comments on the following:

- 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.

➤ **Comments on Definition of Resiliency**

a) The Proposed Definition of Resiliency is Problematic. T-Mobile appreciates that the Proposal implicitly recognizes that resiliency is a fluid concept that requires consideration of a number of factors including various strategies (e.g., backup power, redundancy, temporary facilities, planning and communication). The proposed definition also appropriately focuses on the concept of recovery which, as noted above, is one of the guiding principles of T-Mobile's resiliency program.

However, T-Mobile submits that the proposed definition is problematic for several reasons including the following: First, resiliency is not predicated on being able to “adjust easily”. The process of creating a resilient network is a complex process that often requires the intensive use of all resources available. Second, the terms “adversity” and “change” are overbroad in this context. As we are all acutely aware these days, “adversity and change” come in many forms, most of which are unrelated to how a carrier can restore and maintain service to the extent possible during a natural disaster or a PSPS event. Third, the list of strategies included in the proposed definition overstates the ability of any one tool to create resiliency within a given network or to otherwise maintain service. For example, the proposed definition of backup power includes a statement that carriers that design their network with backup power “are able to maintain service during the loss of power”. Although backup power is an important tool in designing safe and reliable networks, it is neither feasible nor necessary in all circumstances nor does it guarantee continued service in particular emergency events.¹⁸ Finally, as discussed

¹⁸ The proposed definition of “temporary facilities” is similarly flawed as those types of facilities, at least in the wireless context, have important – but limited – functionality.

below, they also are too limited as they do not include some of the key elements necessary to provide resilient networks (e.g., reliable commercial power).

b) Proposed Definition of Resiliency. T-Mobile suggests that the definition of resiliency be modified to better reflect the focus of this Rulemaking and the core concepts at issue. In particular, T-Mobile suggests the following:

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.¹⁹ Key elements include, but are not limited to the following:

In addition, T-Mobile suggests that the list of potential elements tied to communications service resiliency considerations, some of which are not within the control of wireless carriers, be streamlined to provide as follows (without any attempt to characterize how or when these factors should or can be utilized):

- 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 Cal OES, electric utilities and other stakeholders;
- Ability of consumers to contact carriers and government agencies; and
- Reasonable cooperation among carriers

¹⁹ This definition is consistent with the definition of “resiliency” recently adopted by the Commission in its currently Rulemaking to Consider Strategies and Guidance for Climate Change Adaptation, D.19-05-054 (defining “resilient” as the ability to withstand business disruptions and the ability to recover when those disruptions occur.”).

4. **Backup Power Requirement**

The Proposal would require “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.” The ACR seeks comments on the following:

- (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.

➤ **Comments on Backup Power Requirement**

- a) The Proposed Backup Power Requirement is Unnecessary and Exceeds the Commission’s Jurisdiction

As an initial matter, T-Mobile reiterates that it has deployed permanent backup power throughout its network. For example, in California, essentially all of T-Mobile’s macro cell sites have built-in battery backup and T-Mobile is continuously working to enhance those capabilities.²⁰ In addition, T-Mobile has permanent generator backup power at all of its

²⁰ As a general matter, the only places where T-Mobile does not have battery backup on its macro cell sites is where local authorities restrict the provision of battery backup or there are physical limitations at the site that prevent the backup power source. Battery backup, however, is not a feasible source of power where there are extended power outages. Site-specific information on backup battery power was provided to the Communications Division and the Public Advocates Office in responses to data requests during the course of this proceeding.

California mobile switching centers and data centers as well as in numerous strategic cell sites including sites located in rural areas.²¹ Indeed, T-Mobile is in the midst of a multi-year network enhancement program to install hundreds of permanent generators on additional cell sites throughout the state.

Second, the permanent installation of backup power on all sites (or equipment) is not practical, feasible or necessary. For many sites, long-term backup power cannot be installed because of, among other things, safety concerns, land use restrictions, site owner issues, terrain or other physical limitations. For other sites, the installation of a generator would be unnecessary as the site may be used only for limited purposes, or the site is not otherwise necessary in the event of an emergency to maintain service,²² and there would be no benefit to having long-term power backup in those situations. In addition, the provision of backup power on all sites and equipment would also be prohibitively resource intensive. Moreover, as discussed throughout, backup power is only one element of a resiliency program.

Third, T-Mobile's ability to respond and otherwise prepare for a PSPS event is dependent in great part on the receipt of timely and accurate information from electric utilities and other service providers as well as the responsible and prudent use of the shutoff option by those utilities. Those elements were lacking in the October PSPS events in many instances. T-Mobile remains hopeful that the reliability and timeliness of the communications from the IOUs will continue to improve. In addition, T-Mobile is hopeful that the use of microgrids, and other refinements in the electric grid, will further limit the geographic scope of any future PSPS events.

²¹ *Id.*

²² *See* Section 4.d, below (discussing T-Mobile's ability to maintain service in emergencies even if sites go down in a particular area).

Moreover, the design of a network requires consideration of numerous factors (e.g., coverage, capacity, traffic patterns, consumer demands, financial considerations, spectrum, RF propagation, etc.), which are matters that can only be addressed by industry experts who have the benefit of understanding the technological, operational, and financial considerations required.

Finally, although the Commission can certainly encourage wireless carriers to provide service during emergencies and PSPS events – something wireless carriers regularly have been able to do in California and across the country in numerous situations²³ – the Commission does not have the authority or the jurisdiction to mandate how carriers build their networks, the level of service they have to provide, when they have to be provided, or the types of services they have to provide.²⁴ These are matters within the exclusive jurisdiction of the FCC pursuant to Section 332 and other federal law.²⁵ In addition, the requirement that would require “web browsing” is similarly within the exclusive jurisdiction of the FCC for the reasons stated above and independently because broadband services are clearly information services.²⁶ In other words, the

²³ See e.g., CTIA Opening Comments on Proposed Decision at Section II (August 5, 2019); See also link at <https://www.ctia.org/the-wireless-industry/industry-commitments/wireless-network-resiliency-cooperative-framework>.

²⁴ See e.g., *Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment et al.*, Declaratory Ruling and Third Report and Order, 33 FCC Rcd. 9088, 9104 n.84 (2018) (states 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.”).

²⁵ See e.g., *Bastien v. AT&T Wireless Servs.*, 205 F.3d 983, 988 (7th Cir. 2000) (the “[Communications Act] makes the FCC responsible for determining the number, placement and operation of the cellular towers and other infrastructure.”); see also *Telesaurus VPC, LLC v. Power*, 623 F.3d 998, 1010-11 (9th Cir. 2010) (agreeing with *Bastien* that preemption under Section 332(c)(3)(A) is to be read broadly and the Communications Act’s savings clause for state jurisdiction narrowly and finding that “determinations of public interest, safety, efficiency, and adequate competition, [are] all inquiries specially within the expertise of the FCC.”); *Shroyer v. New Cingular Wireless Servs., Inc.*, 622 F.3d 1035, 1041 (9th Cir. 2010); *In re Apple iPhone 3G Prod. Liability Litig.*, 728 F. Supp.2d 1065, 1071 (N.D. Cal. 2010) (“where the relief sought would ‘alter the federal regulation of,’” among other things, “location and coverage,” the claims are preempted under *Bastien*’s standard).

²⁶ See 47 U.S.C. § 153(24); *Charter Advanced Servs.*, 903 F.3d at 719-20; *Restoring Internet Freedom*, 33 FCC Rcd. at 345 ¶ 55.

Commission lacks the jurisdiction to mandate how carriers operate their networks, what services they provide, or when they provide them.²⁷

Jurisdictional limitations aside, T-Mobile is firmly dedicated to providing and maintaining a robust, resilient network for California consumers and first responders at all times, including during emergencies. The decisions on how best to create that network, however, are not subject to state mandates.

b) The Definition of “Outage” Should be Consistent with Cal OES Regulations.

Although the term “outage” is not referenced in the proposal identified above, T-Mobile assumes that this question is related to the inability of customers to obtain wireless coverage in a given area during a PSPS event (not the “power outage” caused by a PSPS event). In order to maintain consistency throughout the state, T-Mobile submits that the definition of “community isolation event” proposed by Cal OES in its pending SB 670 proceeding be used by the Commission as the basis to help it monitor and track potentially customer impacting service outages during PSPS events. The current version of the Cal OES definition provides that a wireless community isolation event is an outage “that is not caused by scheduled maintenance , lasts 30 minutes, and affects at least 50 percent of the carrier’s coverage area in a single ZIP Code.”²⁸

²⁷ See nn. 23-25, *supra*; see generally 47 U.S.C. §§ 301, 303, 307, 308, 319, and 332; see also 47 CFR § 27 et seq. (license renewal requirements).

²⁸ See Cal OES Notice of Modifications to Proposed Regulations (March 16, 2020). A link to the Notice can be found at <https://www.caloes.ca.gov/PublicSafetyCommunicationsSite/Documents/NoticeofModificationstoTextofProposedRegulations.pdf>

c) The Proposed 72-Hour Requirement is Unnecessary and Beyond the Commission's Jurisdiction.

T-Mobile is unaware of any facts or record that would support the need for 72-hour backup power. Moreover, and as discussed more thoroughly below, T-Mobile uses a variety of tools to maintain the integrity of its network during emergencies to provide as many consumers and first responders as possible with a fundamental level of service for as long as possible during any given emergency event. There is no way of determining in advance the duration of a particular emergency, and it would be overly simplistic to design the overall network for an arbitrary time period. The key is to have the flexibility, the expertise, and the tools to respond as robustly as is technically and reasonably possible.

d) Other Considerations – T-Mobile's Overlay Network Capabilities.

As T-Mobile has stated on previous occasions, the focus on number of cell sites down does not accurately reflect the actual customer impact of PSPS events (or other emergencies). By the same token, a single-minded focus on backup power does not recognize the variety of tools available to carriers in emergency situations or the feasibility of such a proposal.

In the face of cell site outages due to PSPS events or other emergencies, T-Mobile generally has the ability to establish an overlay network in impacted areas using a sub-set of its cell sites to provide connectivity that enables as many consumers as possible in those areas, if not all, to make voice calls, access the internet for web alerts, send or receive text messages, and receive Wireless Emergency Alerts.²⁹ T-Mobile also has the ability to redirect traffic to adjacent sites where appropriate and deploy generators strategically to best ensure continued coverage to

²⁹ See e.g., PHC Transcript (November 7, 2019) at 75:9 – 76:7 (Gallacher statement about ability to provide overlay network in emergency events when cells sites are down).

the extent possible. This is precisely what T-Mobile did in the late October PSPS events and in other emergency situations where cell sites are impacted.³⁰

T-Mobile's ability to continue to provide service even in the face of broad commercial power outages is well illustrated by its experience in Marin County in the late October PSPS events. Although a fair number of T-Mobile's cell sites in the county were out of service at some time because of the PSPS event, T-Mobile was able to maintain service throughout almost the entire county. It did so with a combination of backup generators,³¹ overlapping coverage from neighboring cell sites and its ability to adjust antennas and radio power on operational sites, as well as, leveraging low-band spectrum which has particularly robust propagation characteristics.³² Using that combination of tools, the metrics for actual calls made and received, coverage footprint and trouble tickets during the PSPS event were similar to those experienced under non-emergency conditions.³³

In other words, T-Mobile maintained a fundamental level of service throughout almost all of Marin County during the late October PSPS events even though some of its cell sites in the county were not operational.³⁴ T-Mobile continues to enhance its abilities to recover and maintain service throughout the state and requires flexibility

³⁰ *Id.* at 75:9 – 77:10.

³¹ Of note, many of T-Mobile's cell sites in the county are located on roof tops where generators are not feasible.

³² *Id.*

³³ *Id.* at 76:18-77:4.

³⁴ T-Mobile identified three limited areas where coverage was materially impacted during the PSPS events. These areas, however, were along highways in remote areas of National Forests, where space/terrain and access issues made installation of generators unfeasible at the time, and in one area south of Eureka where fire related access and safety issues, generator failures, and terrain challenges prevented T-Mobile from using other sites for overlay.

to continue this work based on the expertise of those individuals within the company who best understand the complicated processes involved in operating a network.

5. Backup Power Plans

The Proposal requires providers to “submit a verified Backup Power Plan to the Communications Division Director. The plan shall describe the Provider’s ability to maintain access to 9-1-1 and maintain the ability to receive emergency notifications and access web browsing for emergency notices for 100 percent of customers in the event of a power failure.” The Proposal also contains a number of specific topics to be addressed in that Plan. The ACR seeks comments on the proposed requirement and the following:

(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.*).

(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.

(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.

➤ **Comments on Backup Power Plans**

T-Mobile has provided the Commission with extensive and detailed information regarding its ability to restore and maintain its network in the face of emergencies and PSPS events³⁵ and looks forward to further discussions with any of the Commissioners, their advisors or Commission staff on this important topic. In addition, it is working cooperatively to develop community isolation outage reporting with Cal OES and other carriers and stakeholders. The connection between this proceeding and some of the information to be included in the Plan as set forth in the Proposal, however, seems less than clear and should be reviewed to avoid imposing unnecessary burdens on providers and staff alike and diverting resources and attention from the task of exploring resiliency.

Perhaps most importantly, however, the premise of the requirement, i.e., the ability to provide service to “100% of customers in the event of a power failure” is technically impossible, operationally unrealistic, contrary to the nature of wireless service, and runs counter to the basic concepts of resiliency. As an initial matter, providers cannot – even in non-emergency conditions – provide service to “100% of customers”. Different geographic areas have different coverage levels and even with those areas that have coverage, a customer’s experience can vary by season, location within a building, whether they are hiking in a canyon, and a variety of other factors. T-Mobile is unaware of any carrier who claims to provide service to 100% of customers at all times. In an emergency, the challenges only increase. Although wireless service is far more ubiquitous and reliable than it has ever been, it would be irresponsible to suggest to California consumers that wireless technology can provide such assurances.

³⁵ See e.g., T-Mobile Infrastructure Hardening Comments, *supra*.

a) The Focus on Clean Energy in this Proceeding is Misguided. T-Mobile is – and has been - dedicated to addressing the serious issue of climate change and has been recognized widely for those efforts.³⁶ The use of “clean energy backup solutions”, however, is neither feasible nor realistic at this time. Many of the alternate systems currently under development are not scalable at this time and most are not even projected to be available for many years in the future. Moreover, the Commission does not have the authority to dictate the type of backup systems utilized by carriers or to mandate that carriers become involved in the development of products for other industries (e.g., “develop cooperative agreement with other utilities and Providers to make clean energy feasible”).³⁷

Moreover, the approach suggested by the Proposal is at odds with the Commission’s current Rulemaking to Consider Strategies and Guidance for Climate Change Adaptation (R.18-04-019) which defines its purpose as “to provide a forum for addressing how energy utilities should plan and prepare for increased operational risks due to changing climate conditions and heightened risks from wildfires, extreme heat, extreme storms, drought, subsidence and sea level rise, among other climate change phenomena.”³⁸ At most, a similar forum should be convened in this proceeding to facilitate the creation of sound public policy and further enhance understanding of this important topic.

³⁶ See e.g., link at <https://www.t-mobile.com/news/t-mobile-green-america-scorecard>

³⁷ See e.g., Cal Health and Safety Code §4000 (placing the “responsibility for control of air pollution from all sources, other than emissions from motor vehicles” under the auspices of local and regional air quality districts); see also *Orange County Air Pollution Control Dist. v. Public Util. Com.* (1971) 4 Cal. 3d 945,953. See also pp. 13-14, *supra* (discussing jurisdictional limits).

It is important to keep in mind that T-Mobile is a wireless communications company; it is not in the business of generating electricity or creating green alternatives – it is a consumer of those services and products.

³⁸ D.19-05-054 at p. 2.

b) The Need for Waivers is Unclear. The Proposal provides for carriers to seek waivers in two situations (1) where facilities are redundant and 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 (2) where safety considerations or other laws preclude the use of backup power. At a minimum, these waiver provisions seems inconsistent with the Proposal’s explicit acknowledgement that backup power is not required on all facilities and focus on backup capabilities necessary 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”. In other words, the waiver provision seems to suggest that carriers seek waivers for facilities that are not covered by the proposed requirement in the first place. Moreover, the use of waivers for sites where the law otherwise precludes the use of backup power also seems unnecessary as no such backup power would be appropriate in those circumstances. In sum, the concept of a “waiver” in the context of this Rulemaking is at best unclear at this time.

c) The Critical Facility Location Information Sharing Proposal Raises Serious Concerns.

The Proposal for Critical Facility Location Information Sharing is unnecessary, duplicative of other ongoing efforts, unsupported by the record and poses a risk to network security and integrity. As noted above, T-Mobile has already provided the Commission with confidential and detailed information about the location of its facilities in California. That type of information has been recognized as critical network information under federal law and its potential disclosure to bad actors creates a serious safety risk.³⁹ In addition, there are apparently

³⁹ See Presidential Policy Directive 21, <https://obamawhitehouse.archives.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil> (February 12, 2013); See also Title II, Subtitle B, of the Homeland Security Act of 2002, Public Law 107-296, 116 Statute 2135 (6 U.S.C. 131 et seq.); 6 Code of Federal Regulations, Part 29, as amended; Department of

hundreds (if not thousands) of local and regional emergency responder agencies across the state – whose dedication to protecting the state has been unwavering – but there is no way of ensuring the confidentiality and the security of such information shared on such a broad basis.⁴⁰

Moreover, T-Mobile, like the rest of the industry, is working cooperatively with Cal OES to create an entirely new paradigm for “community isolation outage” reporting which is specifically designed to enhance situational awareness. In fact, SB 670 (as enacted) explicitly provides that Cal OES will “be responsible for notifying any applicable county office of emergency services, the sheriff of any county, and public safety answering point affected by the outage.”⁴¹ Cal OES just recently released its revised proposed regulations which are set to go into effect later this year.⁴²

In addition, the purported purpose of this proposal is, at best, unclear. It seems to rely on various rationales including (a) the need for fire departments to know the location of wireless infrastructure so they can prioritize protection in the case of a wildfire and (b) the need for emergency responders to know where there is a service outage so that they can direct emergency alerts to that area (which would not be possible if there was an actual coverage issue). T-Mobile is not aware of any connection between the stated rationales for this proposal and requests it has received from emergency responders in the recent wildfires or PSPS events. Instead, T-Mobile’s

Homeland Security, Protected Critical Infrastructure Information Program Procedures Manual (April 2009), at Appendix 2, Definitions, *available at* <https://www.dhs.gov/sites/default/files/publications/pcii-program-procedures-manual-508.pdf>.

⁴⁰ As previously discussed in this docket, there is no central repository identifying emergency responders or emergency response centers in the state. This is an area where the Commission may be particularly helpful if it could spearhead the effort to create such a database. PHC Tr. 89:24-90:10 (November 7, 2019)(Rudy Reyes).

⁴¹ See Govt’ Code Section 53122(c).

⁴² A copy of the proposed Cal OES regulations, released on March 16, 2020) can be found at <https://www.caloes.ca.gov/PublicSafetyCommunicationsSite/Documents/ModificationstoProposedTextofRegulations.pdf> Public comments on the revised proposed regulations were due on April 1, 2020.

interactions with fire officials have been primarily to make sure that it does not interfere with their work and otherwise has clearance to go into impacted areas to repair facilities or restore services where needed. As for emergency alerts, T-Mobile is unaware of any network issue which has impeded the ability to issue emergency alerts. It also notes that WEA remains one of the most effective and reliable means of issuing emergency alerts.⁴³

Finally, this proposed mandate, like the ACR and the Proposal in general, is based on the unfounded statement that the record indicates that the alleged lack of redundancy and hardening in the network resulted in “massive outages.”⁴⁴ As discussed above, that was simply not the case and seems to be based on a fundamental misunderstanding of how wireless networks operate and the data derived from the NORS/DIRS reports.

d) The Critical Infrastructure Resiliency, Hardening and Location Information Sharing Proposal Would Create Serious Security Risks and is Unrealistic.

The Proposal would require providers to annually submit GIS information with specific location of network facilities and backhaul routes. The proposal is problematic for numerous reasons including:

- The submission of this type of information poses serious national security concerns as it would essentially constitute a roadmap on how to attack or compromise a carrier’s network;
- The information is highly proprietary and confidential and could have serious competitive implications if it were to find its way into the hands of other carriers;

⁴³ See <https://www.fcc.gov/consumers/guides/wireless-emergency-alerts-wea>

⁴⁴ See Proposal at p. 5. In a related statement, the Proposal also asserts that there is a need to collect this type of information “to determine whether there is sufficient physical redundancy and hardening integrated into the communications networks.” *Id.* Aside from the fact that the premise of this statement is incorrect as noted above, the statement seems to confuse the concepts of redundancy and hardening (an undefined and ambiguous term) with resiliency. Moreover, the Commission does not have either the jurisdiction or the expertise to make those types of determinations.

- There is no record to support the need for the Commission to have such information; the issue is resiliency and the ability to respond to emergency situations; and
- Certain information, e.g., backhaul routes, is not necessarily in T-Mobile’s custody, possession or control. Some backhaul providers, like power providers, do not share that type of information with their customers, including customers such as T-Mobile.
- As discussed above, there is no way to ensure the confidentiality and security of such information if it were “made available” to state and local emergency responders; and
- There is no rationale to justify the need for such information or how it would be used by the state and local emergency responders.

Perhaps most troubling is the statement that the staff “shall analyze this information, in coordination with emergency responders, to identify locations in the state where actions must be taken to harden communications infrastructure for risk, including areas and communities where fiber backhaul routes do not have adequate hardening or physical redundancy...”⁴⁵ As an initial matter, the Commission does not have the authority or the jurisdiction to dictate how wireless carriers construct or operate their networks, as discussed above. Even from a purely practical matter, the proposal is wholly unworkable. Decisions on how networks are designed, including issues of resiliency, coverage, capacity and the like, are complex matters that involve technical, financial, and other considerations that are far outside the purview of the Commission or its expertise. The state cannot – and should not – try to dictate these matters.

⁴⁵ Proposal at p. 6.

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.

- 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.

➤ **Comments on Emergency Operations Plans**

As it has noted before, T-Mobile maintains an enterprise-wide Business Continuity Program as part of its internal emergency response system that is designed to provide general guidance and maximum flexibility to the various parts of the business responsible for responding to a wide variety of potentially disruptive events such as earthquakes, hurricanes, wildfires and other disasters.⁴⁶ T-Mobile's Business Continuity Program promotes active involvement and coordination among all lines of business. It is regularly refined to maintain its effectiveness and to try and ensure that T-Mobile has the ability to effectively address, among other things, emergency situations throughout the country while maintaining overall business continuity. In shaping its Business Continuity Program, T-Mobile also draws from governmental guidance and industry best practices.

Several key elements of the T-Mobile Business Continuity Program include:

- **Risk Evaluation and Controls.** T-Mobile identifies risks and hazards – both natural and man-made – that may threaten operations, customers, and services. Strategies that incorporate geo-redundant teams, infrastructure and application systems are part of the overall risk mitigation strategy across many teams as a normal course of business.

⁴⁶ See T-Mobile's Infrastructure Hardening Comments, *supra*.

- **Business Continuity and Disaster Recovery Strategic Direction.** Critical groups within the company such as engineering, customer care, technology, and facilities are structured to be able to respond quickly at both a national and regional level during emergency situations.
- **Crisis Response, Emergency Response, and Operations.** T-Mobile’s engineering and technology groups have dedicated emergency operations centers nationwide to address major event command and controls. Call centers, data centers and retail stores have plans to activate processes in response to various events.

In sum, T-Mobile’s emergency response teams have the ability to react quickly to the needs of communities in the face of disasters, each of which presents unique and often unpredictable challenges. To the extent the Commission wants to review T-Mobile’s Business Continuity Program, it can readily be provided (on a confidential basis).

T-Mobile further notes that the Proposal’s requirement that plans should “have uniform requirements across all Providers and that the plans are shared with the relevant emergency responders”⁴⁷ is neither realistic nor feasible, and is not necessarily desirable in the communications industry. Each carrier has its unique network design, its own personnel, its own facilities and its own unique policies and practices and other considerations which dictate how they approach emergency situations. Moreover, there is great variety among carriers within the wireless industry, not to mention variation among industry types (e.g., landline, backhaul providers, and VoIP.).

a) The Specific Information Identified for Inclusion is Problematic. The Proposal also includes some specific information which it suggests should be included in any Emergency Plan.

T-Mobile responds to each below:

- Emergency Contact Information. T-Mobile has no reservations about identifying an Emergency Contact and has already done so pursuant to

⁴⁷ Proposal at p. 6.

President Batjer's earlier request. As noted above, however, there is no comprehensive list of emergency response organizations or local emergency response organizations or first responders. To the extent the Commission can develop such a list, the distribution of contact information by the Commission would seem like the most efficient and logical solution to any information gap this requirement is intended to address.

- Emergency Preparedness Exercises. T-Mobile's emergency response plans are robust and its personnel are well-prepared and trained to address a wide variety of disasters and to respond to PSPS events (provided they receive timely and accurate information from the electric utilities). Although the Commission has broad discretion to seek information from carriers, T-Mobile is not aware of any authority which would allow it to dictate how it trains its personnel and whether it needs to incorporate any particular activities into its policies and practices.⁴⁸
- Public Communication Plans. The Proposal for public communication plans in the event of a "disaster or PSPS event" reflects a misunderstanding of how wireless networks work and is not supported by any record. As noted above, when there is a such an event, and even if certain cell sites "go down", T-Mobile can generally maintain fundamental services to consumers including access to 9-1-1 service and the ability to make calls and receive emergency notifications. Moreover, wireless service outages, when they occur, are not necessarily planned events like PSPS events. Thus, even if the various terms used in the proposal were defined (e.g. outage, outage impacts, etc.), the utility of such a requirement is less than clear.
- Communication with State and Local Emergency Responders. The Proposal suggests an entirely new reporting paradigm that does not track the existing requirements under General Order 133-B or the proposed regulations currently being developed by Cal OES for community isolation outage reporting. Leaving aside the numerous practical, security and operational challenges presented by this proposal, there is no identified justification or rationale to support additional reporting requirements. In addition, SB 670 (as enacted) explicitly directs Cal OES to share community isolation outage with first responders and the most recent version of the Cal OES proposed regulations provide for updates every 6 hours. It is hard to imagine how or why this additional reporting

⁴⁸ See e.g., *Camp Meeker Water Sys., Inc. v. Pub. Utilities Com.*, 51 Cal. 3d 845, 861, 799 P.2d 758, 767 (1990); see also *Pac. Tel. & Tel. Co. v. Pub. Utilities Comm'n of State*, 34 Cal. 2d 822, 827, 215 P.2d 441, 444 (1950) (Public Utilities Act does not "specifically grant to the commission power to regulate the contracts by which the utility secures the labor, materials, and services necessary for the conduct of its business").

requirement would foster the resiliency of communications networks or otherwise promote public safety.

T-Mobile also notes the suggestion to provide “temporary access to real-time network monitoring tools” to “the responsible State agencies” is particularly unrealistic and unwarranted from both a technological and security perspective.

b) No Need for Additional Information.

To the extent the Commission ultimately requires the submission of some type of Emergency Operations Plan, it submits that nothing beyond what is otherwise created by the carriers in the normal course of maintaining the resiliency of their networks is necessary or warranted.

7. Current Mitigation Efforts

The Proposal directs that all respondent communications service providers 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);
- 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.

The ACR further noted that “to the extent practicable, communication service providers are directed to submit as much of this information as possible without assertion of confidentiality.”

➤ **Comments on Current Mitigation Efforts**

Consistent with the direction of the ACR, T-Mobile provides the following information as requested:

a) Additional Generators. T-Mobile is currently acquiring hundreds of additional portable generators that will be based in California and is in the process of similarly increasing the number of permanent generators on California sites.⁴⁹ T-Mobile also has contracts with both local and national vendors that operate in California, including portable generator rental companies to meet the needs of impacted communities and local governments, as well as to support its own recovery efforts.

b) Additional Temporary Facilities. In addition to portable generators, T-Mobile maintains cells in wheels (“COWs”) and cells on light trucks (“COLTs”) in California. T-Mobile also has contracts with national vendors that operate in California and that can supply additional COLTs and COWs throughout California where needed.

c) Additional Network Redundancy. To the extent this inquiry is directed at network redundancy in addition to the availability of portable and permanent generators, and COWs and COLTs, T-Mobile notes that is also has satellite and microwave backhaul capability, utilizes fiber backhaul to most of its cell sites, and has battery back on essentially all of its cell sites as

⁴⁹ During the late October PSPS Events, T-Mobile had hundreds of portable generators deployed; a number which far exceeds the normal course deployment of portable generators in the state.

they are part of the standard T-Mobile configuration for the macro cell sites.⁵⁰ In addition, all of T-Mobile's switching centers have permanent backup generators. Moreover, as discussed above, T-Mobile has the ability to establish an overlay network in impacted areas using a sub-set of its cell sites to provide connectivity that enables as many consumers as possible in those areas, if not all, to make voice calls, access the internet, and send or receive text messages. T-Mobile also has the ability to redirect traffic to adjacent sites where appropriate and deploys generators strategically to best ensure continued coverage to the extent possible.

d) Current Planning. As noted above, T-Mobile currently is in the process of acquiring hundreds of portable generators and intends to install permanent generators on numerous additional sites throughout the state. T-Mobile is continuously engaged in evaluating and monitoring new technologies and new tools that will only further increase the resiliency and the reliability of its network and the services it provides to consumers and first responders at all time; including during emergencies. It is also engaged with the electric utilities to facilitate the timely and accurate exchange of information during future PSPS events.

e) Barriers. T-Mobile has been, and remains, committed to providing resilient and reliable communications services to consumers and first responders at all time to the extent feasible. In the process of deploying and maintaining that network, some of the key barriers it faces include challenges working with the unique requirements and limitations of hundreds of different local jurisdictions throughout the state, space limitations on sites; geographic challenges, and landlord issues. In addition, T-Mobile notes that the safety of its employees and

⁵⁰ In general, the only cell sites that do not have battery back-up power are in locations where the local authorities restrict their installation, or where other physical limitations (*e.g.*, a weight or size restriction) prevent the permanent installation of back-up batteries. Even in those limited instances, T-Mobile continually evaluates new technologies which may enable the installation of backup power where it was previously unavailable, *e.g.* Lithium Ion batteries can help address sites that have restrictions due to weight limits.

the public are always at the forefront and there are times those concerns have to override all other matters.

f) Cooperative Agreements. T-Mobile is already a signatory to the CTIA Network Resiliency Cooperative Framework and is always looking for viable/feasible cooperative agreements and other opportunities. In addition, it is continuously looking to enhance the resiliency of its network as reflected by its emergency overlay capabilities and the additional portable and permanent generators discussed above. For example, T-Mobile is also installing quick connectors on hundreds of sites for quicker connection to a portable generator as well as power failure detection devices.

g) Future PSPS Events. T-Mobile has no way of predicting if the electric utilities will declare a PSPS event in the future and if so, how broad that event will be. To the extent T-Mobile is provided with timely and accurate notice of such events, it believes that it will continue to have the ability to maintain service to the vast majority of consumers in the areas impacted by the PSPS event using the wide array of tools described above. Of course, certain recovery efforts can be hampered to the extent the PSPS events are accompanied by wildfires which often create additional safety or access issues.

8. Other Topics for Commission Consideration

The ACR provides that “Parties may identify issues in addition to the proposed rules and discussion in the Proposal.”

➤ Other Topics for Commission Consideration – The Need for Workshops

Resiliency is a complicated topic that touches on, among other things, the reliability of the electrical grid, climate change, unique and unpredictable natural disasters (including for example, fires, floods and earthquakes), the unique technology and design of the various communication providers’ networks, and technological and economic considerations. To that

end, T-Mobile urges the Commission to conduct focused workshops with staff, industry, first responders and all interested stakeholders, including the full breadth of industries required to support operational wireless networks, so that they can exchange information, ask questions, and help create an effective approach to promote network resiliency and network resiliency awareness.

IV. CONCLUSION

As discussed above, T-Mobile responds quickly, flexibly and effectively to a wide range of service disruptions. It looks forward to continuing the discussion on wireless network resiliency and how best to address the challenges created by devastating natural disasters and PSPS events in order to better serve consumers, first responders and California in general.

Respectfully submitted this 3rd day of April, 2020.

by: _____/s/
Leon M. Bloomfield
Law Offices of Leon M. Bloomfield
1901 Harrison St., Suite 1400
Oakland, CA 94612
Telephone: 510.625.1164
Email: lmb@wblaw.net

Attorney for T-Mobile West LLC