

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of:

Improving Wireless Network Resiliency
through Encouraging Coordination with
Power Companies.

PS Docket No. 11-60

**COMMENTS
OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION**

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I. INTRODUCTION

The California Public Utilities Commission (CPUC or California) submits these comments in response to the March 26, 2021 Public Notice (Public Notice) released by the Public Safety and Homeland Security Bureau (Bureau) of the Federal Communications Commission (FCC), in which the FCC seeks comment on wireless service providers' safety measures for their customers during disasters in connection with the Consolidated Appropriations Act of 2021.¹ The FCC seeks comment to inform a report to Congress, and asks specifically for input on recent efforts by mobile wireless service providers to improve network resiliency. In the Public Notice, the FCC cites to the *Explanatory Statement* accompanying the Consolidated Appropriations Act of 2021, which expressed “concern[n] about the resiliency of wireless phone networks during natural disasters, including wildfires,” and sought a report from the FCC “on the type of safety measures wireless carriers have for their customers,” within 180 days of enactment, or by June 25, 2021.² The FCC seeks updated information on specific measures mobile wireless service providers have taken in recent years to improve response readiness and network resiliency during natural disasters.³ The CPUC has information that is relevant to the FCC’s inquiry, as discussed below.

II. DISCUSSION

In March 2018, the CPUC opened Rulemaking (R.) 18-03-011, *Order Instituting Rulemaking Regarding Emergency Service Disaster Relief Program to Support California Residents*. California initiated R.18-03-011 “to adopt comprehensive post-disaster consumer protection measures for all utilities under the [CPUC’s] jurisdiction.”⁴ In Decision

¹ PS Dkt. 11-60, Public Notice.

² *Id.*

³ *Id.*

⁴ R.18-03-011, p. 1.

(D.) 20-07-011, the CPUC adopted resiliency strategies for wireless communications providers, and in D.21-02-029, the CPUC adopted resiliency strategies for wireline communications providers. Decision 20-07-011 and D.21-02-029 (collectively, “decisions”), adopted six groups of resiliency strategies for all facilities-based wireless and wireline communications service providers with facilities located in Tier 2 and Tier 3 High-Fire Threat Districts that are nearly identical.⁵ We have summarized both decisions below and provided links to these decisions in the footnotes and in the appendix.⁶

A. Need for Wireless and Wireline Resiliency Requirements

Californians need access to 9-1-1 and emergency services to function in their daily lives and receive vital safety or emergency information. During the 2017, 2018, and 2019 wildfires and 2019 Public Safety Power Shutoff (PSPS) events,⁷ widespread communication outages occurred across all sectors including the facilities used to provide wireless telephone service, traditional landline telephone service, cable video service, voice over internet protocol (VoIP) service, and broadband Internet access service. These outages exposed a lack of network resiliency, a failure to prepare for disasters, and a failure on the part of these providers to actively communicate service outages to the public and emergency responders.

During this same period, the CPUC’s Communications Division received a substantial increase in Major Service Interruption (MSI) reports. From 2017 to 2018, Communications

⁵ In D.17-01-009, as modified by D.17-06-024, the CPUC identified three “High Fire Threat Districts” in the state: Tier 1 areas depict the High Hazard Zones identified by the U.S. Forest Service-CAL FIRE joint map of Tree Mortality; Tier 2 fire-threat areas depict areas where there is an elevated risk (including likelihood and potential impacts on people and property) from utility associated wildfires; Tier 3 fire-threat areas depict areas where there is an extreme risk (including likelihood and potential impacts on people and property) from utility associated wildfires.

⁶ D.20-07-011: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M344/K021/344021480.PDF>
D.21-02-029: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M366/K625/366625041.PDF>

⁷ PSPS events are an effort to reduce the risk of fires caused by electric infrastructure by temporarily turning off power to specific area. See <https://www.cpuc.ca.gov/psps/>

Division received a 16 percent increase in MSI reports from 2017 to 2018, and a 123 percent increase from 2018 to 2019.⁸ The wildfires and the power outages from the PSPS events contributed to a significant delay in the restoral of communications services. Most critically, wireless communications failed at critical times during wildfire and PSPS events which resulted in many wireless customers being unable to make calls during times of emergency or disaster. Many Californians have no alternative means of communication other than their wireless network; without that wireless network, they simply cannot communicate.

In 2017, 9,270 wildfires burned 1,548,429 acres, damaging or destroying 10,280 structures, and killing 47 people.² The largest fires burned in Northern California during the month of October, including the Tubbs Fire, in Napa, Sonoma, and Lake counties. The Tubbs Fire was one of the most destructive fires in California history, burning 36,807 acres and resulting in 22 deaths. The Thomas Fire burned 281,893 acres in Santa Barbara and Ventura counties and resulted in 23 direct and indirect deaths.

In 2018, 7,948 wildfires burned 1,975,086 acres, damaging or destroying 24,226 structures, and killing 100 people.¹⁰ The Camp Fire in Butte County became the most destructive wildfire, damaging or destroying 18,804 structures and resulting in 85 deaths. During the same month in 2018, the Woolsey Fire in Southern California burned 96,949 acres and damaged or destroyed 1,643 structures in Ventura County. The Mendocino Complex fires burned 459,123 acres.

⁸ MSI reports – Pursuant to GO 133-D, Section 4, Major Service Interruption (MSIs), all carriers must submit outage reports according to prescribed thresholds. The CPUC adopted the FCC’s Network Outage Reporting System (NORS) reporting requirements with the G.O. 133-D. The CPUC only has data beginning in 2017, when GO 133-D took effect. Based on Final reports only.

² <https://www.fire.ca.gov/incidents/2017/>

¹⁰ <https://www.fire.ca.gov/incidents/2018/>

In 2019, 7,860 wildfires burned 259,823 acres, damaging or destroying 732 structures, and killing 3 people.¹¹ The Kincade and Tick Fires burned 77,758 acres in Sonoma County, and 4,615 acres in Los Angeles County, respectively. During the same period, the state's electric corporations, such as PG&E, implemented PSPS or de-energization of powerlines. Customers of communications services, such as traditional wireline services, wireless services, and VoIP services were unable to send or receive calls due to lack of commercial power that resulted from the power shut-offs. Many individual PSPS events have impacted tens of thousands of customers with the largest PSPS events taking place on October 9-11, 2019 and October 26-31, 2019.

The most severe impacts of these fires were in High Fire-Threat Districts, where there were repeated reports of cell site failures, particularly in the 2018 Camp Fire in Butte County (town of Paradise). Then in 2019, substantial numbers of wireless sites in Butte County were inoperative because of the PSPS events. Additionally, the FCC reported that up to 57 percent of Marin County cell towers went down at the peak of the October 2019 PSPS events, where it appeared the only operative factor was the lack of power.¹²

In the fall of 2020, California had its worst fire season in recorded history. According to the California Department of Forestry and Fire Protection (Cal Fire), over 9,917 fires have burned 4,257,863 acres, more than 4 percent of the State's roughly 100 million acres of land, making 2020 the largest wildfire season recorded in California's modern history.¹³ Maintenance of communications infrastructure is critical in these types of catastrophic events for purposes of

¹¹ <https://www.fire.ca.gov/incidents/2019/>

¹² See FCC Communications Status Report for Areas Impacted by California Public Safety Power Shutoffs, dated October 28, 2019, at <https://docs.fcc.gov/public/attachments/DOC-360482A1.pdf>

¹³ <https://www.fire.ca.gov/incidents/2020>

alerting citizens to hazards, reaching emergency services through 9-1-1, or receiving orders to evacuate.¹⁴

California's electric corporations and water corporations also expressed concern over providers' ability to maintain reliability and resiliency during disasters and electric outages. Both our electric and water corporations emphasize the critical nature of communications during power outages. California's water utilities rely on communications networks to monitor facilities, maintain contact with field personnel, communicate with personnel and customers, and receive emergency notifications and critical information. California's electric corporations expressed similar concerns.

California's emergency responders expressed similar concerns with the reliability of the State's communications networks, as well as the communication and cooperation of the companies operating these networks. At the outset of the state of California's efforts to adopt these requirements, the California Governor's Office of Emergency Services (CalOES) Director Mark Ghilarducci articulated these concerns:

We have to have assurances that when we utilize this [cellphone], this life-saving critical communications device, it has resiliency built into the system. In California, which I would also argue exists in hurricane-prone states and flooding-prone states, but here in California we have all sorts and kinds of disasters. It's just the way it is. It's been that way since we made it a state... [We] need to have assurance that the system is resilient. That means that those cell sites are hardened, that they have defensible space around wildfire, that they have battery or fuel backup beyond a four-hour timeframe that we know that they can withstand. Particularly now with a PSPS event, they could go for multiple days. We have to know that the system is resilient."¹⁵

¹⁴ See, e.g., March 26, 2020 Opening Comments of Rural County Representatives of California to the Assigned Commissioner's Proposal at 3; April 3, 2020 Comments of Communications Workers of America at 2 ("loss of communications service is often a matter of life and death").

¹⁵ Cal OES Director Ghilarducci's statements before the California Senate's Energy, Utilities, and Communications Committee from November 18, 2019, available at: <https://www.senate.ca.gov/media/senate-energy-utilities-communications-committee-20191118/video>

Local emergency managers depend upon a working communications network. In 2019, Sonoma County, “already subject to a PSPS event, made the difficult decision to evacuate early in response to the Kincade Fire because they feared what evacuation would be like without reliable access to communications to disseminate warnings and alerts. Because of the widespread outages, many fire departments in Sonoma County were forced to operate by radio alone and had limited ability to receive data or maps.”¹⁶

B. Applicability of Wireless and Wireline Resiliency Requirements

Decision 20-07-011 and D.21-02-029 apply to facilities-based wireless and wireline providers, respectively. The requirements adopted in these decisions are limited to Tier 2 and Tier 3 High Fire Threat Districts to focus efforts and investments on the communities that are most at risk. While these districts have been prioritized because they are the most at risk, the CPUC has explicitly made clear its intent to review whether this requirement provides sufficient protection to all Californians impacted by wildfires, disasters, and PSPS events.

C. Definition of Resiliency for Wireless and Wireline Providers

The CPUC adopted a definition for wireless and wireline service providers that clearly identifies the specific strategies providers must employ to ensure resiliency:

“Resiliency” – the ability to recover from or adjust to adversity or change – is achieved by Providers through various strategies intended to ensure that essential services are provided without interruption during power outages and other emergency events, including but not limited to the following:

- **Backup Power:** network operators that design their networks with batteries and generators, as well as maintain mobile generators and refueling plans, make necessary preparations and precautions to

¹⁶ Opening Comments of Rural County Representatives of California to the Assigned Commissioner’s Proposal, March 26, 2020: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M332/K175/332175045.PDF>

safely operate generators, are able to maintain service during the loss of power;

- Redundancy: networks that are designed with redundancy – both wired (e.g., logical and physical route diversity) or wireless (e.g., dense and overlapping cell sites) – are able to mitigate impacts caused by disasters and power outages;
- Hardening: networks that are hardened can withstand damage from disasters. For example, ensuring that backhaul and critical sites have defensible space and are built to withstand natural disasters, including earthquakes;
- Temporary Facilities: network operators that own and maintain temporary facilities (e.g., mobile cell sites, mobile satellite and microwave backhaul, etc.) are able to restore service to their networks when facilities are damaged or destroyed;
- Communication and Coordination: network operators that establish clear channels of communication and coordinate with emergency responders at the local, state and federal level, CalOES, CAL FIRE, the Commission, other utilities (including electric utilities, community choice aggregators, water, wastewater and other communications service providers) and the public are best positioned to maintain and restore service after a power outage or disaster; and
- Preparedness Planning: Network operators that maintain comprehensive preparedness plans and qualified staff are able to maintain and restore service to their networks quickly and effectively.¹⁷

These resiliency strategies do not comprise an exhaustive list. The wireless and wireline service providers have the discretion to deploy more approaches as both the public and private sectors evolve and develop new measures for emergency preparedness.¹⁸

1. Backup Power

In both D.20-07-011 and D.21-02-029, the CPUC determined that 72-hours of backup power immediately following a de-energization event for the providers' networks is sufficient to

¹⁷ D.20-07-011 at 60-61. The CPUC adopted a nearly identical definition of “resiliency” for wireline service providers. See D.21-02-029 at 31-32.

¹⁸ *Id.*

meet public need. The CPUC's backup power requirement is flexible, giving providers discretion to manage their networks. This enables providers to: (1) deploy mobile generators on an as-needed basis to sites that lose power and do not have permanent fixed generators; (2) deploy temporary facilities like cells on light trucks (COLTs), cells on wheels (COWs), satellite picocells on truck (SPOTs), which support locations where service cannot otherwise be maintained due to damage or loss of power; and (3) deploy refueling trucks to refill generators as needed, as opposed to deploying sufficient batteries or fuel tanks at all sites to withstand a 72-hour outage.¹⁹ This flexibility makes the 72-hour backup power requirement reasonable, as providers can refuel generators that do not have tanks with a 72-hour capacity as well as use other best practices.²⁰ The CPUC recognized that, ideally, every network location would have an on-site generator with a zero-emission backup power supply, but that is not reasonably available or feasible at this time.²¹

2. Minimum Level of Service

In the decisions, the CPUC required wireless and wireline service providers to ensure customers and first responders have access to minimum service levels and coverage.²² Minimum service levels and coverage include the following: (1) 9-1-1 service; (2) 2-1-1 service; (3) the ability to receive emergency alerts and notification; and (4) basic internet browsing during a disaster or commercial power outage. Ensuring continuity of communications service is of vital importance to the consistency and reliability of 9-1-1 communications and favors preservation of security, life, reliability, and safety.

¹⁹ D.20-07-011 at 88-89; D.21-02-029 at 53-54.

²⁰ *Id.*

²¹ *Id.*

²² D.20-07-011 at 92-93; D.21-02-029 at 57-58.

The CPUC recognized that the loss of internet service during a de-energization event can have devastating results and cascading effects. For example, many emergency notifications sent via text message contain links to websites where consumers can access more information about the outage or emergency.²³ Customers and first responders have a reasonable expectation that they will have communication services, receive emergency alerts and notifications, and can access the internet for critical information during an emergency, disaster, or when the power is out.

3. Communications Resiliency Plans

The CPUC required detailed information on the network components at the facility level of wireline and wireless service providers in Tier 2 and Tier 3 High Fire Threat Districts as part of a “Communications Resiliency Plan.” The informational elements required in the Resiliency Plans are by design, aimed to establish a set of minimum standards to preserve minimum continuity of service as wildfires and commercial grid outages continue in the foreseeable future. The CPUC requires wireless and wireline service providers to submit Resiliency Plans that describe how they will maintain a minimum level of service and coverage to preserve access to 9-1-1 and 2-1-1 services, maintain the ability to receive emergency notifications, and access to internet browsing for emergency notices to their customers in the event of a power failure.²⁴

4. Annual Emergency Operations Plans

In its decisions, the CPUC directed providers to submit the following information to the CPUC, CalOES, and local emergency response managers within their service territories:

- a. Emergency Operations Plan:** wireless providers to annually submit a copy of its emergency operations plan that details how the provider will respond in the event of a system-wide or local emergency that

²³ *Id.*

²⁴ D.20-07-011 at 102-103; D.21-02-029 at 68-70.

arises from natural or manmade disaster to the CPUC, CalOES, and local emergency response managers within their service territory.

- b. Emergency Contact Information:** Provide a list of emergency contact information and provide personnel that includes individuals who will be able to serve as the State Operations Center (SOC) liaison and can be present twenty-four (24) hours a day, seven (7) days per week in the SOC, when requested by CalOES, during emergency response events. SOC liaisons must be trained in emergency response, in accordance with the state's Standardized Emergency Management System (SEMS), have working knowledge of wireless provider operations and business processes, and informed of the impacts of PSPS events and disasters on the wireless provider's network.
- c. Emergency Preparedness Exercise:** Each wireless provider shall conduct or participate in an annual emergency preparedness exercise to test its emergency procedures unless it has implemented its emergency procedures in response to an actual event within the last twelve (12) months.
- d. Public Communications Plans:** As soon as reasonably possible, at the onset of a disaster or PSPS event, each wireless provider shall post, and update at least daily, on its website a map of outages and service impacts, a description of any outage impacts in the specified areas, and the expected restoration time. This information shall be distributed to impacted customers and the general public by posting relevant information on the wireless provider's website and social media accounts, by sharing information with local media, and by providing updates to local and state elected officials and public safety stakeholders. Providers must follow customer outreach best practices we adopted in the CPUC's Decision 19-08-025.

D. Other Network Resiliency Requirements for Wireline Providers

1. Generation at Customer Premises

In our proceeding, wireline service providers made a key point that customer premises equipment, including VoIP equipment, cable modems, Wi-Fi routers, cordless phones, and desktop computers, all require separate backup power to provide communications service during an outage.²⁵ The CPUC determined, however, that this does not diminish the obligation of

²⁵ D.21-02-029 at 62.

wireline providers to maintain service on their end of the network, as there are multiple strategies that consumers use to maintain their own backup power.²⁶

The requirements the CPUC adopted apply to facilities in Tier 2 and 3 High Fire Threat Districts.²⁷ These customers will be more than likely to have been de-energized, impacted by a wildfire, or been in a suggested or mandatory evacuation zone. These communities are more than likely to have taken measures to ensure their own safety and communications service resiliency through procuring their own sources of backup power, such as a generator for their entire home or business.²⁸ Generators ensure service – not just for communications – but for lighting, air-conditioning, heating, refrigeration, medical equipment, and other modern conveniences. In other dockets, the CPUC is working to improve consumer education about the need for backup power and to increase access to consumer backup generation.²⁹ Thus, the CPUC determined it is reasonable to require wireline providers to maintain backup power in addition to wireless providers.

2. Communities with Limited Wireless Coverage

The CPUC determined that wireline service providers must provide special care to communities with limited wireless coverage.³⁰ In these communities, wireline service is of critical importance; it is the only lifeline for these communities to reach the outside world and otherwise receive notifications of incoming disasters. To address this issue, the CPUC ordered wireline providers to prioritize maintaining service in areas lacking sufficient wireless coverage

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ D.19-09-027 authorized the collection of \$100 million for CPUC's Self Generation Incentive Program, which provides subsidies for generation for vulnerable customers in High Fire Threat Districts.

³⁰ D.21-02-029 at 64-65.

across Tier 2 and Tier 3 High Fire Threat Districts. The CPUC published a map of areas in the state within Tier 2 and Tier 3 High Fire Threat Districts that do not have sufficient wireless coverage from at least one or fewer facilities-based wireless providers and required backup power to be deployed in these areas ahead of the 2021 fire season.³¹

III. CONCLUSION

The CPUC appreciates this opportunity to provide comments to the FCC on improving wireless network resiliency. We hope that the information provided helps the FCC develop proposals that will promote a more resilient infrastructure in the face of a major storm, wildfire, or other disastrous event and expedite restoration efforts.

Respectfully submitted,

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³¹ <https://capuc.maps.arcgis.com/apps/webappviewer/index.html?id=a486824b0f0b48d28c677606e8dc0077>

APPENDIX A

D.20-07-011: Decision Adopting Wireless Provider Resiliency Strategies:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M344/K021/344021480.PDF>

D.21-02-029, Decision Adopting Wireline Provider Resiliency Strategies:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M366/K625/366625041.PDF>